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The JAG JOURNAL

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A SYMPOSIUM ON SPACE LAW

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The JAG Journal publishes material which it considers will assist in achieving this objective, but views expressed in the various articles must be considered as the views of the individual authors, not necessarily bearing the endorsement or approval of the Department of the Navy, or the Judge Advocate General, or any other agency or department of Government.

Invitations to submit articles are extended to all persons, whether lawyers or laymen. Articles submitted should adopt an objective rather than an argumentative approach and should be written in a manner readily understandable by the lay reader. The JOURNAL will return unpublished manuscripts if so requested, but responsibility for safe return cannot be assumed. No compensation can be paid for articles accepted and published.

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THE THIRTEENTH GENERAL ASSEMBLY RESOLUTION ON THE PEACEFUL USE OF OUTER SPACE

THE GENERAL ASSEMBLY,

RECOGNIZING the common interest of mankind in outer space and that it is the common aim that it should be used for peaceful purposes only,

BEARING IN MIND the provision of Article 2, paragraph 1, of the Charter, which states that "the Organization is based on the principle of the sovereign equality of all its Members,"

WISHING to avoid the extension of present national rivalries into this new field,

DESIRING to promote energetically the fullest exploration and exploitation of outer space for the benefit of mankind,

CONSCIOUS that recent developments in respect of outer space have added a new dimension to man's existence and opened new possibilities for the increase of his knowledge and the improvement of his life,

NOTING the success of the scientific cooperative program of the International Geophysical Year in the exploration of outer space and the decision to continue and expand this type of cooperation,

RECOGNIZING the great importance of international cooperation in the study and utilization of outer space for peaceful purposes,

CONSIDERING that such cooperation will promote mutual understanding and the strengthening of friendly relations among peoples,

BELIEVING that the development of programs of international and scientific cooperation in the peaceful uses of outer space should be vigorously pursued,

BELIEVING that progress in this field will materially help to achieve the aim that outer space should be used for peaceful purposes only,

CONSIDERING that an important contribution can be made by the establishment within the framework of the United Nations of an appropriate international body for cooperation in the study of outer space for peaceful purposes,

DESIRING to obtain the fullest information on the many problems relating to the peaceful uses of outer space before recommending specific programs of international cooperation in this field,

1. ESTABLISHES an *ad hoc* committee on the peaceful uses of outer space consisting of the representatives of Argentina, Australia, Belguim, Brazil, Canada, Czechoslovakia, France, India, Iran, Italy, Japan, Mexico, Poland, Sweden, the Union of Soviet Socialist Republics, the United Arab Republic, the United Kingdom of Great Britain and Northern Ireland the United States of America and requests it to report to the General Assembly at its fourteenth session on the following:

(a) The activities and resources of the United Na-

(*Continued on page 34*)

Honorable NEIL H. MCELROY
Secretary of Defense

Recent launchings of earth satellites by the United States and the Soviet Union have deeply affected many of our institutions. I might mention, as examples, the fields of defense, education, medicine, diplomacy and finally as it affects all of these fields—law. If man is to continue to be governed by laws then he must be so governed in all elements into which he ventures. He is on the threshold of venturing into a new element—cosmic space. The articles which follow, written especially for this issue of the JAG Journal, are devoted to a definition of the laws which govern space as those laws now exist as well as to an examination of what the law of the future should be. They constitute, therefore, a valuable contribution to any and all who take part in man's new adventure.

Neil H. McElroy
Secretary of Defense

UNITED STATES FOREIGN POLICY AND THE DEVELOPMENT OF LAW FOR OUTER SPACE

By LOFTUS BECKER*

THE LEGAL ADVISER, DEPARTMENT OF STATE

RECENTLY, JUST PRIOR to the attempted launching of the first lunar probe, the President received a cable from a private citizen in one of the British dominions. In the cable, the writer informed the President that he had duly filed in his local registry of deeds a claim to a certain sector of one of the craters of the Moon, alluded to the proposed lunar probe, and concluded, "I hold your government responsible for any damage to my property caused by your rocket." One may safely predict that the new "space age" will have its legal problems!

In reviewing the events of the year which has elapsed since the formal opening of this "space age", it seems to me that the response of lawyers and in fact the general public to the potential legal challenge of these developments has been quite unprecedented. After all, lawyers are popularly supposed to be a staid and unimaginative lot, immersed in dusty tomes and at least a decade behind the times. And international law has acquired a reputation among the public as a dull and esoteric subject, seemingly quite remote and undeserving of attention by would-be space adventurers. Yet, in barely a year, lawyers have already come forward with dozens of proposals relating to a legal regime for outer space—ranging indeed from definitions of outer space to codes for dealing with intelligent beings from other worlds. These ideas have in turn been taken up by the press, radio and television, and have caught hold of the public imagination. We are in fact well on the way to every citizen becoming a full-fledged "space lawyer".

This interest and excitement concerning the legal challenge of outer space has not been without its counterpart within the government. These problems have for some time been given a great deal of thought and attention. Thus far, however, this government has submitted only modest proposals along these lines. I would like in this article to explain some of the reasons for this approach, comment briefly on our general foreign policy regarding outer space, and thereto then take up some specific questions relating to the provision of a legal framework for this new region.

BASICALLY, THE POSITION of the United States Government is that the law of space should be based upon the facts of space, and that there is much more we have to learn before we shall be in a position to say what shall be the general legal principles applicable to activities in that region. This is in accord with the tendency of development of the common law, which has been on a case-by-case basis. Speaking very generally, it has been felt that the soundest way to progress in the extremely complex field of the law is by means of specific decisions, on specific questions, presented by specific fact situations.

This approach is also in accord with our modern concept of the primary role and function of law, namely, that of the resolution of differences and settlement of disputes, actual or anticipated, between human beings. Until we know what these differences or disputes will be and how and between whom they may arise, we are in an "Alice-in-Wonderland" world. Efforts to declare or establish detailed rules at this time can be at best only fumbling in the dark and at the worst prove actual impediments to the rational development of outer space. Before seeking

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adequate solutions we must know the nature of the technical problems we are facing, the human conflicts that are to be resolved, and the environment in which solutions will operate. As we come to know these things, we can then proceed step by step on the pragmatic basis of actual experience to build an enduring and effective structure of rules and principles which will adequately reflect real interests and sensible solutions.

Another factor influencing the approach of this Government to the potential legal problems of outer space has perhaps been the traditional caution of the lawyer—particularly important for the government lawyer—in responsibly advising his client as to the formulation of an official position regarding the legal problems of such a complex, undefined, and unknown area. As part of his professional responsibility, the lawyer for the United States Government must protect his client against a number of contingencies—some clearly foreseeable and others only to be surmised at the time, although they may become all too real in the future. The Government lawyer must thus, of necessity, proceed slowly, seeking to retain for his client the utmost flexibility and freedom of action with regard to future events. It is perhaps inevitable that such a course may encounter criticism as being "over-cautious" or "too slow moving." There are doubtless times when such criticism may be justified. But by-and-large our professional experience has shown that it is the lawyer who pursues such a course who keeps his client "solvent and out of jail".

There is also, of course, a further responsibility on the lawyer who has for his client a national government. His foresight and planning must reach beyond the immediate interests of the government to its general long-term interests in a stable and prosperous world community and its special responsibilities for displaying initiative and leadership in world affairs. He has no professional responsibility for the defining of such interests. But he can attempt to implement them through law so far as those policies are effectively proclaimed by the policy formulating and declaring organs of the nation. Programs of this nature are, in fact, under constant study and development within the Government.

BEFORE TURNING TO the specifically legal questions, I would like to make some general observations as to the basic pattern of the existing foreign policy of the United States Government with respect to space. This policy is in fact no different from that with respect to international relations here on the earth.

In the first place, in conformity with our undertakings under article I of the United Nations Charter, it is our purpose to insure that—in space as on the earth—international peace and security are maintained and that international disputes or situations which might lead to a breach of the peace are adjusted or settled in conformity with the principles of justice and international law.

THIS GOVERNMENT IS in favor of international cooperation in solving international problems. At the same time, it is dedicated to the maintenance of the legitimate national interests of the United States and holding firm to its inherent right of individual and collective self-defense against armed attack, which is fully recognized under article 51 of the United Nations Charter.

In this connection, the most immediate problem in the field of space foreign policy is how to ensure that outer space is used for peaceful purposes only. The United States Government has already taken an initiative in this field and has long recognized the importance of determining now what steps can be taken to assure that missiles and other outer-space vehicles, already in the development stage, will be utilized solely for peaceful purposes. This recognition stemmed from the fact that today these military space instruments are in the early stages of development. With the passage of time and their continuous growth and refinement, the problem of effective international control becomes more difficult. This point is best illustrated by a similar historical problem. In 1946, international control of the military use of nuclear energy could have been attained with relative ease. Today, as we well know, control of the atom has become a much more vastly complicated and difficult task.

Fully cognizant of this lesson of history, the United States proposed to the United Nations on January 14, 1957, that—

"the first step toward the objective of assuring that future developments in outer space would be devoted exclusively to peaceful and scientific purposes would be to bring the testing of such objects under international inspection and participation."

This was the first recognition by any nation of the immediate need to deal with this compelling problem. Since that time we have repeatedly stressed the need—and our willingness—to reach agreement in this vital area.

SECONDLY, THE UNITED States Government strongly favors international cooperation in outer space activity. In this area there are indeed challenging and exciting possibilities—ranging from the cooperative construction, launching and operation of radio relay and weather satellites ultimately to international cooperation in the development of manned space stations and planetary flight. Truly cooperative international programs of this sort could have far-reaching international implications, diminish wasteful and dangerous national rivalries, and lead to inestimable benefit for all mankind. It may be noted that the recently enacted "Space Act of 1958" provides authority for such international cooperation in these fields. Such international cooperation could well provide the basis for the parallel development of a system of legal accommodation.

Ultimately, to foster and guide the cooperative efforts that are possible, it would appear axiomatic that some appropriate international machinery be created. At this time, we in the State Department envisage no obstacles—political or technical—which would preclude the establishment of such an international system of cooperation or coordination.

On December 13, 1958, the United Nations General Assembly adopted a resolution sponsored by twenty Powers, including the United States, which established an *ad hoc* committee on peaceful uses of outer space. This resolution names to the committee the following: Argentina, Australia, Belgium, Brazil, Canada, Czechoslovakia, France, India, Iran, Italy, Japan, Mexico, Poland, Sweden, U. S. S. R., United Arab Republic, the United Kingdom, and the United States. This committee will report to the 14th General Assembly next year on—(a) the activities and resources of the U. N., its specialized agencies, and other international bodies relating to the peaceful uses of outer space; (b) the area of international cooperation and programs in the peaceful uses of outer space which could appropriately be undertaken under UN auspices, taking into account proposals for permanent continuation of outer space research now being carried on in connection with the International Geophysical Year, for exchange of information, and for coordination of national research programs; (c) future organizational arrangements for international cooperation in this field within the United Nations framework; and (d) the nature of legal problems which may arise in carrying out programs to explore outer space. This resolution may well result in studies affording guidance as to what can profitably be done in this field. It is very much to be regretted that the Soviet Union has displayed an intransigent attitude as regards United Nations consideration of this vitally important matter. This intransigence culminated in the Soviet announcement that they would not participate or cooperate in this, the first attempt by the nations of the world to resolve the problems created by mankind's exploration of outer space. We hope that this is not the final position of the USSR on this point.

I WOULD LIKE to now turn to some specifically legal questions regarding outer space. I do not consider it as correct to say that there is no international law with respect to space outside the atmosphere. Article 51 of the United Nations Charter reserves to each of the members of the United Nations an "inherent right" of individual or collective self-defense against armed attack. It is immaterial whether the attack originates in or passes through outer space in order to reach a member state. In such a case, that state has the right to defend itself, a right established under accepted international law, as defined in the Charter of the United Nations. I may add that, while domestic law has developed without regard to the specific conditions of space flight, there are existing principles of international and domestic law which could be made applicable at this time in the event that a satellite or other space instrumentality entered the "airspace" of any sovereign state. I would, therefore, suggest that the page upon which we may ultimately write the "law of space" is not so frighteningly blank as it is at times supposed.

The suggestion has frequently been made that the United States Government take the initiative in proposing a broad international "code for outer space," designed to solve all possible problems in this field, both present and future. In view of the general approach of this Government as outlined above, it should not be surprising that we have thus far made no such proposal. Such a code—or indeed even an attempt to provide detailed solutions to broad problems in this area—does not seem at this time either necessary, possible, or desirable. Rather than pressing urgently and perhaps blindly, for immediate solutions to these unique problems, we must retain our awareness that this "space age" is in fact in its "earliest dawn," and await patiently the development of those "legislative facts" which will alone allow us to evolve rational prin-

ciples of order. We must not allow the fascination and inherent excitement of the subject matter to tempt us from our traditional and time-tested methods and techniques of evolving sound law.

On the other hand, constructive proposals may usefully be made in connection with more limited problems with which we are immediately involved and have accumulated some experience. Perhaps the best example of such a problem is the need for international agreement allocating and controlling radio frequencies used by objects and vehicles transiting outer space.

VARIOUS PROPOSALS HAVE been advanced for the definition of upper limit to sovereign air space over national territory. Debate upon this question has been intense since the first satellite was launched. Theories have been advanced ranging from suggestions that sovereign air space extends "ad infinitum", to arguments that under national laws and the International Civil Aviation Convention, national sovereignty extends simply to the limits of something called "air space". An extraordinary amount of effort and ingenuity have been spent in attempting to define just what this "air space" is. There is the further discussion as to what the legal status of the zone outside any limited zone of national sovereignty should be—whether free for the use of all or perhaps conceded to be within the sovereignty of some international organization.

This debate has been most helpful in clarifying our thoughts on these problems. But its main contribution has been in underscoring the primitiveness of our understanding of the facts involved and our lack of knowledge of the practical, technical and legal context in which the question arises. If there has been any conclusion to this debate, it has been that there is in fact no simple formula for dealing with the problem of the definition of national sovereignty—that we are in a new dimension both physically and intellectually, with which we are really not prepared adequately to deal in the abstract.

The United States has never in fact recognized any top or upper limit to its sovereignty. Even if such international agreements as the Chicago Convention of 1944 be interpreted as conferring "complete and exclusive" sovereignty only within some limit of "air space"—a concept not defined either in the Convention, by lawyers, or by scientists—it should be noted that this does not of itself establish that the United States has no rights above these limits. Neither the United States nor any other nation has thus far taken any position as to whether it possesses such rights. There have, consequently, been many proposals that this ambiguity be removed and that immediate international agreement be reached on this issue.

I would like to suggest that there are a number of reasons why any such attempt either at unilateral definition or international agreement would be unwise and premature at this time.

IN THE FIRST place, it would seem that our knowledge of the facts with respect to the upper reaches of air space and beyond is insufficient to justify such a definition. We are just beginning to probe these regions. We have no basis upon which to decide what criteria should determine such limits. We may ultimately determine that there should be different rules as regards control by subjacent states with respect to different types of instrumentalities or objects that may pass through space, on the basis of the nature of their activities, the risks they pose, and the public interest involved.

Secondly, it may be noted that outer space activities do not affect only outer space but are of primary interest to us today only as they relate to earth and to our own interests upon it. The questions of policy calling for immediate determination relate to the position of the United States with respect to certain activities, such as the launching of military missiles, all of which originate, or are controlled from the surface of the earth and pass through the "air space", regardless of how far from the surface of the earth they may extend and how long they may stay there. In the present state of our knowledge, the principal problems and our policies with respect to them, relate to these specific activities, rather than to the location of any one or more of them at a particular time—whether within or without the air space or zone of national sovereignty. A definition of "air space" will not aid us in this regard.

Thirdly, as a policy matter, undesirable implications might be drawn from any unilateral definition of "air space" or even an attempt at definition, which might prejudice the United States in possible future negotiations with other nations for an appropriate regime for outer space. Thus, such a definition might be interpreted as a renunciation of existing sovereignty beyond such limits or as an indication that "outer space" beyond the "air space" is not capable of sovereign appropriation. While the

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SPACE ABOVE THE SEAS

By JOHN COBB COOPER, LLM*

FELLOW AMERICAN ACADEMY OF ARTS AND SCIENCES
AND
PROFESSOR EMERITUS INTERNATIONAL AIR LAW, McGILL UNIVERSITY

THE PURPOSE OF this Article is to state certain of the major problems of the legal status of flight space above the seas. Flight space means so much of universal space above the surface of the earth as is now used, or may hereafter be used, as the area in which flight takes place. Flight space includes both the "air-space" and "outer-space". Flight includes any movement through space of man operated or man controlled devices or instrumentalities such as balloons, dirigibles, airplanes, rockets, guided missiles, artificial satellites or space ships. The term "seas" includes both the "high seas" and the "territorial waters," or marginal seas.

HIGH SEAS

THE LEGAL STATUS of usable space above the high seas has always been of particular interest to the Navy. One of the earliest and most authoritative American discussions of the problem of the extent of national sovereignty in space is found in the remarks of Professor George Grafton Wilson in the Naval War College "International Law Situations" for 1912, pages 71–72. Repeating what he had said in a paper published the prior year in the American Political Science Review, and basing his remarks on a quotation from a decision by Mr. Justice Story in *Santissima Trinidad* (7 Wheaton 354), Professor Wilson asserted:

> "It would seem wise . . . to start from the premise that air above the high seas and territory that is res nullius is free, while other air is within the jurisdiction of the subjacent State 'and that the exceptions to this rule are such only as by common usage and public policy have been allowed, in order to preserve the peace and harmony of nations and to regulate their intercourse in a manner best suited to their dignity and rights,' and for these exceptions to the exclusive right of aerial jurisdiction of the subjacent State, international conferences should by agreement immediately provide."

Professor Wilson thus assimilated the freedom of flight above the high seas to the freedom of navigation by ships on the high seas. Many years earlier Story had said in *"The Marianna Flora* (1826) 11 Wheaton 1:

> "Upon the ocean, then, in time of peace, all possess an entire equality. It is the common highway of all, appropriated to the use of all; and no one can vindicate to himself a superior or exclusive prerogative there. Every ship sails there with the unquestionable right of pursuing her own lawful business without interruption; but, whatever may be that business, she is bound to pursue it in such a manner as not to violate the rights of others."

WHEN THE AERONAUTICAL Commission of the 1919 Paris Peace Conference was organized, President Wilson appointed Rear Admiral H. S. Knapp, United States Navy, as one of the Chief Delegates. That Commission had before it the task of drafting an international convention for the regulation of future international flight. At one of the earliest meetings of the Commission, on motion of Admiral Knapp, the following principle was adopted:

> "1. Recognition: (1) of the principle of the full and absolute sovereignty of each State over the air above its territories and territorial waters, carrying with it the right of exclusion of foreign aircraft;
>
> (2) of the right of each State to impose its

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jurisdiction over the air above its territory and territorial waters."

The United States delegation fully understood, however, that the principle thus stated did not apply over the high seas. In a note circulated to other delegations (still preserved in the National Archives in Washington) appears the following proposed convention article:

"The contracting States declare that the sovereignty of States extends throughout the atmosphere above their own territories, including their territorial waters; but that no State may claim sovereignty of any part of the atmosphere over the High Seas or over waste portions of the land that are subject to no particular jurisdiction."

WHEN THE LEGAL Subcommission submitted to the full Aeronautical Commission the draft of what is now known as the Paris Convention of 1919, the basic legal conclusions on which the draft depended were thus stated:

"The first question placed before the Subcommission was that of the *principle of freedom or of sovereignty of the air.*

". . . the opinion expressed in the Legal Subcommission is favorable to the full and exclusive submission of the airspace to the sovereignty of the subjacent territory. It is only when the column of air hangs over a *res nullius* or *communis*, the sea, that freedom becomes the law of the air.

"Therefore, the airspace is part of the legal regime of the subjacent territory. Is this territory that of a particular State? Then the airspace is subject to the sovereignty of that State. Does it escape all sovereignty as the free sea? Then the airspace is also free above the sea, as the sea itself."

The Paris Convention of 1919 was signed but not ratified by the United States. It included in Article I a provision that "Every Power has complete and exclusive sovereignty over the airspace above its territory." No mention was made of the status of the airspace over the high seas. However, the part of the report of the Legal Subcommission quoted above clearly shows that the drafters of the convention, including the United States delegation, fully intended that airspace over the high seas would have the same legal status as the high seas themselves.

THIS PRINCIPLE WAS fully accepted in public international law prior to the outbreak of World War II, subject to one open question, namely, the status of the airspace over the Arctic ice. An interesting comment on the position of the U. S. S. R. in this connection will be found in the United States Naval War College "International Law Situations" for 1937. On page 101 (cited in my article on "Air Space Rights Over the Arctic," 1950, Vol. 3, Air Affairs, p. 517) is a reference to the published views of Lakhtine, who, in support of the "Sector Theory of Arctic Sovereignty" had insisted that States bounding on the Arctic had sovereignty over discovered and undiscovered lands between their shores and the North Pole as well as "over seas covered with ice, surrounding these lands and islands and as well over air regions above this sector."

Clearly the United States has not accepted this theses. A suggestion was made in 1929 to President Hoover that the Government should initiate an international arrangement to partition the Arctic between the United States, Canada, Denmark, Norway and Russia. The proposal was referred to the United States Navy Department. The Secretary of the Navy officially replied to the Secretary of State on September 23, 1929 to the effect that the action proposed:

"(a) Is an effort arbitrarily to divide up a large part of the world's area amongst several countries;

(b) Contains no justification for claiming sovereignty over large areas of the world's surface;

(c) Violates the long recognized custom of establishing sovereignty over territory by right of discovery;

(d) Is in effect a claim of sovereignty over high seas, which are universally recognized as free to all nations, and is a novel attempt to create artificially a closed sea and thereby infringe the rights of all nations to the free use of this area." (Hackworth, *Digest of International Law*, Vol. 1, Sec. 67, p. 464.)

Such was the situation when the Chicago Conference met in 1944 to draft what is now the widely accepted "Convention on International Civil Aviation." In that convention, which the United States has signed and ratified, Article I states that "the contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory." Again, as in the Paris Convention of 1919, no direct statement is made as to the legal status of the space above the high seas. However, so well understood was the principle of

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SPACE LAW
AS
A WAY TO WORLD PEACE

By REAR ADMIRAL CHESTER WARD
JUDGE ADVOCATE GENERAL OF THE NAVY

THE BLASTING INTO orbit of ARPA's ATLAS missile-satellite marked the month of December 1958 with the weightiest United States advance thus far into the physical realms of cosmic space. Prophetically, the President of the United States became the first man to employ a space vehicle to promote peace affirmatively—the first to project his voice into outer space so as to call back from supra-national levels for "peace on earth and good will toward men everywhere".

Concurrently with this scientific success setting a landmark in physical progress, the same month witnessed launching of the weightiest official U. S. probe into the legal aspects of space. Publication of the Staff Report of the House of Representatives Select Committee on Astronautics and Space Exploration, entitled "Survey of Space Law",[1] similarly sets a landmark in the law of space.[2]

The very exceptional potential of this Staff Report for moulding the immediate future of space law entitles it to priority consideration in any symposium in this field. It is more than a substantial new resource for legal research; it will influence policies as well as legal rules for outer space.

Furthermore, both timing and purpose of this national study of space law dovetail with the first great official[3] international project in the field: the United Nations study initiated by the General Assembly's Resolution of 12 December 1958, sponsored by the United States and 19 other countries. This project will, of course, become a primary guide for future international action in the field of space law.[4]

The United Nations study project, however, is just now getting underway, whereas the Staff Report is ready now for use by United Nations study committee members and it covers the same subject matter. Thus it takes on dual importance as probably offering a preview of the United Nations study results, in addition to expediting and serving as a tool in reaching those results.

Finally and perhaps most importantly, the Staff Report promises vast influence in developing the law of space because of the built-in, overriding, universal popularity its conclusions will immediately preempt. Just as the President of the United States put our latest and greatest satellite to work as a physical vehicle for promoting world peace, the House Committee staff study proposes to use the develop-

1. The report (referred to hereafter as the "Staff Report") was prepared by Spencer and Beresford, Special Council to the Committee, and Philip B. Yeager, Special Consultant to the Committee. Although accompanied by an express disclaimer that the views expressed in the report are not necessarily those of the Committee or of any member of the Committee, it does bear the imprimatur of a distinguished staff. In the letter of submittal transmitting the report, George J. Feldman, Director and Chief Counsel of the Committee staff, and Charles S. Sheldon, II, Assistant Director, expressed the hope that the report will "furnish a common basis of understanding, not only for lawyers but for the public, on which policies and legal rules of outer space can develop". (Underscoring supplied.)
There is no question that it represents one of the most comprehensive and authoritative reviews thus far attempted of the principles, problems, and evolutions of space law. The research it represents covered all principal languages.

2. So also does the U.S. Senate's massive and most recent contribution to the space law field set a landmark. The advance it signals, however, is in the availability of research materials. Entitled *Space Law—A Symposium: prepared at the request of Honorable Lyndon B. Johnson, Chairman, Special Committee on Space and Astronautics*, it was published under date of 31 Dec 1958.
Entirely different in purpose from the House Committee Staff Report, it actually brings together for the first time under one cover, the full texts of substantially all of the basic research material on space law. Its impressive 743 pages of substance have been logically—even beautifully—arranged by Eilene Galloway, Special Consultant, Special Committee on Space and Astronautics, United States Senate. It is a pure research tool, and essays neither policy evaluations nor conclusions nor recommendations. (It is, therefore, immune to the type of controversy this article so tentatively suggests as to the *House Committee Staff Report*.)
The Senate Symposium will indeed be most useful to anyone interested in space law: individuals, bar associations, research organizations and the United Nations; it will be invaluable also as a text for law school and university courses dealing with space activities.

3. A private international group—the International Astronautical Federation—has a more than nine-year start on space discussions. Its Ninth Annual Conference was held at The Hague in August 1958.

4. Both Sir Leslie Munro, immediate past President of the United Nations General Assembly, and Loftus Becker, The Legal Adivsor of the Department of State, treat of its import in their articles in this issue of the JAG Journal. The full text of the Resolution, which will govern the work of the U. N. outer space study committee is of such significance that it is set out, for convenient reference on page 2.

ment of space law as a powerful legal vehicle for promoting peace.

THE MAJOR CONCLUSION OF THE STAFF REPORT

HERE ARE THE CONCLUSIONS and recommendations of the Staff Report on space law: [5]

Efforts directed toward development of early space law can be a powerful, positive force for peace.

The now developing legal vacuum growing out of the absence of international agreements relative to space and its use, creates specific dangers. These include increased geo-political tensions, grave international misunderstandings, the projection of national struggles for supremacy onto the larger screen of cosmic space;—and even the very considerable risk of a war of total obliteration being accidentally triggered because of mistaken identification of an unscheduled but innocent satellite as a surprise attack by ICBM.

International agreements—in addition to whatever effect they may have toward avoiding these specific dangers—could conceivably offer the world genuine hope for a lasting end to international conflict.

The defense of the United States would not necessarily be hindered by early development of a space code.

At the end of 1958, the world is approaching a unique crisis demanding clarification of the legal positions of nations as they reach into outer space. The existing and potential needs for early resolution of the legal problems of space activities are too urgent to wait upon the gradual development of a body of common law for outer space on a case-by-case approach. Because of the increasing tempo of events, and because of accelerated and multiplied scientific breakthrough, man no longer has the time he once had in which to develop legal concepts and doctrines.

We should: (1) begin now with the development of rudimentary space law; (2) identify and concentrate upon the most urgent areas which show promise of settlement; (3) attempt agreement on principles and on methods of settling disputes, leaving the specifics for a later date when necessary; and (4) emphasize agreements on scientific and commercial uses of space, working from there toward the larger issues of sovereignty.

Of life or death interest to the free world—and perhaps also to the Communist world as well—are the report's conclusions that the development of space law can be a "powerful, positive force for peace", and that international agreements on space "offer the world genuine hope for a lasting end to international conflict".

We all want most desperately to believe in these conclusions of this "Survey of Space Law". Space law as a way to world peace and an end to international conflict! These—the deepest aspirations of Americans and free people everywhere. Our hopes for these things transcend in fervor all similar desires of all past generations who were never exposed like us to constantly impending total mass destruction.

No questions raised in our entire era could have greater moment, therefore, than these:

(1) Do these conclusions have realistic validity; that is, does space law have a reasonable *probability*—as distinguished from merely *theoretical possibility*—of promoting world peace and bringing an end to international conflict?

(2) Even if the probability of success is low, should we press for priority development of space law in the belief that even if such action appears to be premature it can do us little harm and has the possibility of much good?

In developing answers to these questions, we will be meeting the injunction of Senator Kenneth B. Keating:

> "Man must weigh the possible dangers of acting too soon against the certain dangers of waiting too long." [6]

The Staff Report has a conclusion on this point also—somewhat dramatically phrased: an immediate start toward a space code can avoid, or at least mitigate:

"the greatest danger of all—the danger of doing nothing."

Here again is a conclusion of such moment that it merits examination.

THE THREAT TO THE SURVIVAL OF THE UNITED STATES

NOWHERE in the Staff Report is it *explicitly* asserted that early development of space law *will* be a "powerful, positive force for peace" or that international agreements *actually* "offer the world genuine hope for a lasting end to international conflict". The astute lawyers' words used are respectively the hopeful "could be" and "conceivably could". Nevertheless, *im-*

5. The conclusions are summarized, and are not quoted quite verbatim, but are nevertheless restated in almost exactly the language of the report itself.

6. As quoted in the Staff Report; from his address at the Ninth Annual Conference of the International Astronautical Federation, The Hague, 29 August 1958.

plicit in the entire Staff Report is the impression that these are really "genuine hopes"; and that space law and international agreements not only *can*, but with reasonable probability *will*, eliminate or substantially mitigate seven specific dangers of international frictions, tensions, and risks of total war. The Staff Report finds on the first page, that a crisis exists because of a vacuum in space law, and offers on its last page, its solution for meeting the crisis: early development of a space code; fill the vacuum by international agreement, because it would be too dangerous to wait for the gradual development of a body of common law for outer space.

In essence, therefore, the Staff Report offers — and would rely upon — a theory of "world peace through *space* law". This is completely analogous to the American Bar Association's program "world peace through *world* law". Now, the "space" law the Staff Report speaks of—and the international agreements it advocates—are to govern the nations of this "world"—the same world (surprisingly) with which the American Bar Association proposals deal. It is most unfortunate, therefore, that nowhere in the Staff Report is there any consideration of the one great and inescapable limitation on any program for world peace through any type of law.

This limitation is stated forthrightly and with brilliance by Thomas E. Dewey, certainly one of the most distinguished advocates of the American Bar Association "World Peace through World Law" program. His degree of sincerity is attested by the very title of his Report to the House of Delegates of the American Bar Association: *A Sacred Goal: Peace Under Law.*[7] He says:

> "At the outset we must recognize the dominant fact of the world in which we live: Peace through law can only be achieved between nations which desire it. Expansive, imperialist Communism is in control of one third of the world's population. The Soviet Union does not even honor its most solemn commitments. Her announced intention remains the Communist conquest of the world either by armed force or subversion, or both.
>
> "So long as the world continues in this posture, peace will only be maintained through equal or greater force. As lawyers, we must be realistic enough to recognize that we are dealing with two separate problems on two entirely different levels. One is legal; the other is political and military. * * *
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> * * * * *
>
> "In fact international law and keeping the peace are, to some extent, two entirely different subjects.
>
> "We must recognize that in all of our labors for peaceful settlement of international disputes they will succeed as they have in the past only where there is a basic desire on the part of both parties to keep the peace."

The most outstanding surprise—both in this comprehensive survey of space law, and substantially all the vast body of literature on the subject which it reviews—is the failure to consider the fundamental problem so courageously stated by Governor Dewey. One would have expected repetitive mention of the subject if only for the purpose of attempted refutation—by contentions either that peace *can* be enforced through law, regardless of the Communist determination to conquer the world, or else that the leaders of international Communism *do* desire peace. Instead of refutation, however, even the most sophisticated writers on the international-legal aspects of outer space adroitly avoid coming to grips with this fundamental problem by resorting to tacit assumptions and resting on implications.

Failure to face this fundamental fact of twentieth century life on planet Earth can distort space law from a sensible source of hope for the far future in space, into a series of psychological and military traps to divert, anesthetize, and ultimately destroy the forces of freedom in this world. It applies just as inevitably to any program for world peace through law for space, as it does to any other program of peace through law.

A premature, over-optimistic, unsafeguarded plunge into space law through international agreements will seriously threaten the survival of the United States.

Too many people—particularly lawyers—are seizing upon space law as an escape solution from the unbearable tensions created by the unrelenting Communist drive to communize the world. Too many see it only as a virgin field for appeasement on a cosmic scale, for "accommodations" with the Communists which can carry us out of this war-weary world, for "disengagement" from the unpleasant obligations of national self-preservation.

THESE CRITICISMS OF the majority's optimistic approach to space law are controversial statements; and there are more to come. Certainly they will be unpopular—especially with those so zealous in their demands for an end to the "cold war" that they are willing to ignore

7. Published in 44 American Bar Association Journal 1047 (1958).

the massive evidence of intentions and methods piled up by forty years of Communist conquest and conspiracy. But such statements will be unpopular also with many brilliant and well-balanced lawyers and statesmen who cannot be discounted as zealots. To put the burden of all this unpopularity where it belongs, I feel impelled to step from behind the shield thrown up by the impersonal style.

I do this to assume in the first person the responsibility for making these statements, and to assume also the responsibility for supporting them. I have no right to permit any of such responsibility to fall on the Department of the Navy, the Department of Defense, or the United States Government. I speak for myself alone.

Indeed, I am very much alone in my appraisal of the magnitude of and multiplicity of the threats to survival implicit in premature commitments in space law; but not so much alone fortunately, on the *possibility* of such threats. Thus the very last—and presumably a most significant—policy conclusion drawn in the Staff Report, is this:

"The defense of the United States, therefore, would not *necessarily* be hindered by the early development of space law." (Italics supplied)

This, I take it is recognition that the defense of the United States *could be* hindered by some sorts of early developments in space law. Despite the astute, cautious lawyers' safeguard of inserting the word "necessarily" after the word "not", the superficial reader would certainly gain the impression that the word "necessarily" was a merely hypercautious formality, and that the substantive conclusion was definitely that the defense of the United States was *not* imperiled.

The reasoning on which the Staff Report's conclusion is based further supports this optimistic interpretation. I feel it is only fair, before stating my own conclusions, to set out this reasoning (the antecedent of the word "therefore" in the conclusion quoted above):

"Under the most favorable circumstances, it would scarcely be reasonable to expect an immediate solution of the complex and sensitive problem of national sovereignty in outer space. But a number of the seemingly minor and less delicate issues might well serve as starting points. It may be possible to develop a space code aimed initially at the creation of legal principles to cover scientific and commercial matters—*and thus bypass, for the present, the larger policy decisions bound up in security and defense.*

"There would seem to be no legal reasons why this could not be done. Under the United Nations Charter all nations have positive legal authority to defend themselves, as necessary, from armed attack. Even if later treaties should conflict with this provision and thus supersede it, there is ample authority in general international law for nations to take whatever steps they need to protect themselves. Doctrines of self-defense and self-preservation have long been in existence in international law. Moreover, in pursuit of their legitimate defense, nations are not necessarily limited to their own territory." (Italics supplied.)

It would be most unfair to attribute this "bypass" reasoning solely to the Staff Report. As a survey should, it reflects the literature it surveys, and therefore properly portrays the peculiar penchant of writers on the law of space to make assumptions contrary to the facts of life on earth. Of course, the language of some of the other more prominent writers is different—but the dreams are the same. Where, for example, the Staff Report speaks of "bypassing" the policy decisions bound up in "security and defense", another tacitly assumes that "the missile problem" can be "disengaged" from possible agreements on the use of outer space, so that such agreements will "not get bogged down in disarmament negotiations".[8]

(*Continued on page 21*)

8. Quigg, *Open Skies and Open Space*, 37 Foreign Affairs 95 (1958). Senator Kenneth B. Keating is much more explicit. In addition to asserting that civil and military uses of space "can" and "must" be distinguished, he states that, "from the practical standpoint of developing a space code, the military view is immaterial"; and further, "there is every reason to proceed with whatever agreements can be reached relative to the use of space without worrying over much about whether we shall hamstring the military." *Reaching for the Stars: Space Law and the New Fourth Dimension*, 45 ABA Journal 54 (1959). Senator Keating's premise appears to be founded, at least in part, upon a conclusion that "military minds seem to doubt if space itself will have much more than nominal significance, strategically, for many years to come." *But see* RADM Clark, USN, *The Military Significance of Space*, 105 Cong. Rec. A181 (1959) (remarks of Senator McCormack.) Admiral Clark comments that "often research which at first glance *seems* to be of no anticipated special significance militarily, *works out in practice to accomplish a revolution in technology and exercises a revolutionary influence on weapons systems*". He asks some penetrating questions: "Is there anyone here who doubts the grave military and political implications of a Soviet man circling the earth in a space vehicle beyond our power to counter? Does anyone doubt the military profit inherent in a manned lunar base? I can assure you, there is no doubt in Moscow." These questions have immense military implication when RADM Clark, our Deputy Director of the Advanced Research Projects, concludes with the observation that: "Communism has short term tactics; it does not have short term strategy. Its strategy is domination of all there is to dominate, whether in earth or in space. . . . The era of space travel is here . . . The nation that controls space may well control the world, and we will never achieve it if our first objective is an automobile for each member of the family."

THE NATIONS AND THE FIRMAMENT

The World Organization in Man's Quest for Outer Space

By SIR LESLIE KNOX MUNRO, KCMG, KCVO*

PRESIDENT OF THE TWELFTH SESSION OF THE GENERAL ASSEMBLY OF THE UNITED NATIONS

WHEN THE FIRST man-made satellite hurtled into outer space, it was speedily seen that the consequences of this amazing achievement would affect all mankind. Whether for vast good or vast ill, man's horizons will no longer be of this earth. Apparently he will eventually succeed in entering the universe and reaching the moon and the stars. If he travels so far for peaceful purposes, the consequences and gains for his future mode of life beggar description. If he uses outer space for purposes of war, then he will probably reduce the world to a shambles.

Fortunately, there is world-wide recognition of the need for ordered relationships in the use of outer space as a primary condition of man's existence. Unfortunately, the approach to the subject, as to so many others, is plagued by the seemingly irreconcilable and certainly profound division between the communist and the non-communist worlds. Each recognizes the need for the peaceful use of outer space, but at the height of the discussions in the recent Assembly of the United Nations, the Soviet has said that it will *boycott* the Ad Hoc Committee established by the Assembly to study the problems of outer space. Yet the world should not abandon hope. It can take heart from the fact that in the 13th Session of the Assembly the question found its way onto the agenda and a useful resolution was passed.

DURING THE 12TH Session, as President of the General Assembly of the United Nations, I had urged that the Assembly should, as a matter of urgency, deal with the problem of the peaceful use of outer space—if necessary in a special session. My thoughts were manifest in what I said to the New Jersey State Bar Association on 22 November 1957:

> "As to the actual convening of states on problems raised by recent and imminent ventures into outer space, I believe that the United Nations is the proper forum for necessary discussion. First of all, it is peculiarly equipped to provide small powers with an opportunity to be heard. Although it is undeniable that primary responsibility for the settlement of such matters rests on the Great Powers, any steps taken by them would necessarily affect the smaller ones and I therefore believe, both personally and as a representative of a small power, that they definitely should be heard. Public opinion throughout the world must not be overlooked, and citizens of a small country must be given an equal chance as citizens of a big country to make their feelings known on such important matters.
>
> "Choice of the United Nations as the forum for the consideration of problems relating to outer space is also supported by the identity between its purposes and principles and the purposes and principles which must govern any international consideration of such problems. If one or more nations have achieved something which can take us into outer space, the peaceful use of such a device must be assured, and this through some program of international control. Further, the benefits derived from such devices must be shared by all nations, in keeping with the growing tendency of international sharing of advances in the scientific field, a tendency which has been accentuated in the field of atomic energy and in the arrangements adopted for the International Geophysical Year."

OTHER VOICES AROUND the world were soon heard in support of this general approach; all emphasized the urgency of the matter. The

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President of the United States, in his message of 12 January 1958 to Mr. Bulganin, proposed that the United States and the Soviet Union should agree that outer space should be used only for peaceful purposes. Mr. Eisenhower said forcefully that we face a decisive moment in history. Following this message Mr. John Foster Dulles suggested the establishment of an international commission, preferably under the auspices of the United Nations which would have the task comparable to that of the International Atomic Energy Agency, which is charged with assuring that the nuclear materials that it disposes of, at least, shall be used for peaceful purposes.

On March 15, 1958, the Soviet Permanent Representative to the United Nations asked that an item be included on the provisional agenda of the 13th Session of the Assembly which would ban the use of Cosmic space for military purposes. This Soviet proposal, however, linked to its proposal a demand for the elimination of foreign bases. Nevertheless the accompanying memorandum of the Soviet Union which proposed the establishment for the purposes of international cooperation in the study of Cosmic space deserves serious study.

On May 19, 1958 the Secretary General of the United Nations, Mr. Dag Hammarskjold, made a useful contribution when he expressed the hope "that the General Assembly, as a result of its consideration, would find the way to an agreement on a basic rule that outer space, and the celestial bodies therein, are not considered as capable of appropriation by any state, and that it would further affirm the overriding interest of the community of nations in the peaceful and beneficial use of outer space and "initiate" steps for an international machinery to further this end. Were the General Assembly to reach this point, the governments cooperating in the United Nations would have laid what seems to me to be a valid basis for the future development, in international cooperation, of the use of outer space for the benefit of all."

Mr. Hammarskjold's view that outer space should not be considered capable of appropriation by any state is strengthened by the fact that no government has questioned the right either of the Soviet Union or the United States to send satellites through outer space or claimed that its sovereignty is infringed when a satellite hurtles through outer space for a brief second far above its territory.

IT IS SIGNIFICANT that on 18 September 1958, in his policy speech in the general debate of the 13th Session of the Assembly, Mr. Dulles chose this forum to expound his views on man's major strides in his "conquest of his newest and most exciting frontier, OUTER SPACE." Mr. Dulles asserted that in establishing a system of control of outer space we cannot await a comprehensive disarmament program. I agree that we should not await such a program, but as both Intermediate Range Ballistic Missiles and Intercontinental Ballistic Missiles would traverse outer space, the connection of its peaceful use with a successful plan for disarmament is obvious. Equally obvious is the connection with the whole problem of a world divided by two conflicting and irreconcilable ideologies.

MR. DULLES, WELL aware of these manifold difficulties, nevertheless cogently said:

> "Ten precious years were lost in the development of the peaceful uses of nuclear energy because full international cooperation was not promptly begun. We cannot afford a similar delay in this vast new dimension of human experience which offers perhaps an even greater challenge and opportunity than the splitting of the atom."

The Secretary of State proposed to the Assembly that it establish a representative Ad Hoc Committee to report to the next Assembly on the following:

(a) The activities and resources of the United Nations and its specialized agencies relating to outer space;

(b) The nature of specific projects of international cooperation in outer space which could not be undertaken under United Nations auspices;

(c) Useful United Nations' organizational arrangements to facilitate international cooperation in this field.

Mr. Dulles hoped that these proposals would receive unanimous support. He was doomed to disappointment. His hopes were wrecked on the rocks of Communist opposition and intransigence. It is true that the Assembly on 13 December 1958 established an 18-nation Ad Hoc Committee for the purposes outlined by Mr. Dulles. But there were not enough communist countries on the committee to satisfy the Soviet Union and accordingly the 9-member communist bloc voted against the resolution and served notice that they would not participate in its work. In the absence of the Soviet Union, with its knowledge and record of success in outer space, the committee will find difficulty in functioning with full effectiveness. This Soviet boycott is lamentable.

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NATIONAL COORDINATION FOR SPACE EXPLORATION

The National Aeronautics and Space Act of 1958

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THE AGE OF outer space has begun. It is just a matter of time until manned flights to the moon and planets will be made. The science fiction of space exploration will become as real as Jules Verne's famous submarine, the *Nautilus*. In the perspective of history, the enactment of the National Aeronautics and Space Act [1] will probably be considered the most important legislative event of 1958. The Space Act signals a new field of lawmaking. With the enactment of this Act, the United States is launched on a tremendous program of aeronautical and space activities in the interests of general welfare and security.

The National Aeronautics and Space Act of 1958 creates a civilian agency with broad powers to plan and coordinate the efforts of this nation in matters relating to aeronautical and space activities. The Act establishes the basic national policy and the organization to implement this policy. Under this law, exploration of space is a Government program.[2] In declaring the policy and purposes of the Act, the Congress stated that activities in space should be devoted to peaceful purposes for the benefit of all mankind [3] and that the general welfare and security of the nation require that adequate provision be made for aeronautical and space activities.[4] These activities are made the responsibility of and are to be directed by a civilian agency, "except that activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including the research and development necessary to make effective provision for the defense of the United States) shall be the responsibility of, and shall be directed by the Department of Defense . . ." [5]

The purposes for which the aeronautical and space activities are to be conducted by the United States include (1) the expansion of human knowledge of phenomena in the atmosphere and space, (2) the development, operation, and improvement of aeronautical and space vehicles, (3) the determination of the peaceful and scientific benefits to be obtained from aeronautical and space activities, (4) the preservation of this nation as a leader in aeronautical and space science and technology, (5) cooperation with other nations in this work and in the peaceful application of the results, and (6) the most effective utilization of the scientific and engineering resources of the nation.[6]

CIVILIAN OR MILITARY CONTROL

THE QUESTION OF whether programs or projects were civilian or military arose time and time again during the hearings before the House

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1. The National Aeronautics and Space Act of 1958, 72 Stat. 426, Pub. Law 568, 85th Cong. (hereinafter referred to as the Space Act).
2. The Federal Government's first exploration financing was a $2,500 appropriation, in 1803, for Lewis and Clark to go into the the Louisiana Purchase lands.
3. *See also* H. Con. Res. 332, 85th Cong. The Resolution expresses the sense of the Congress that the United States should, through international agreement or other appropriate means, seek to ban the use of outer space for military purposes, and provide for joint exploration of outer space, and establish methods to settle disputes which may arise. President Eisenhower, on January 12, 1958, in a letter to Nikolai Bulganin, stated: "I propose that we agree that outer space should be used only for peaceful purposes."
4. Sec. 103 (1) of the Act defines "aeronautical and space activities" as "(A) research into, and the solution of, problems of flight within and outside the earth's atmosphere, (B) the development, construction, testing, and operation for research purposes of aeronautical and space vehicles, and (C) such other activities as may be required for the exploration of space."
5. *Supra*, Space Act, Sec. 102 (b), d.
6. *Ibid.*, Sec. 102 (c).

of Representatives [7] and the Senate [8] and during the debates on the bill on the floor of the two Houses.[9] The Senate-House Conference Committee recognized that there was a gray area linking civilian and military interests, and unavoidable overlapping. They felt it was necessary to establish machinery at the highest level of Government to make determinations of responsibility and jurisdiction. The machinery created was the National Aeronautics and Space Council.[10] The Council consists of the President, the Secretary of State, the Secretary of Defense, the Administrator of the National Aeronautics and Space Administration, the Chairman of the Atomic Energy Commission, and not more than four others, one of whom shall be from the executive branch of the Government,[11] and the other three "from among individuals in private life who are eminent in science, engineering, technology, education, administration, or public affairs." [12] The Council's functions [13] are to advise the President with respect to the duties prescribed for the President, which are to (1) survey the policies, plans, programs, and accomplishments of all agencies of the United States engaged in aeronautical and space activities, (2) develop a comprehensive aeronautical and space program to be conducted by the executive branch, (3) designate and fix responsibility for the direction of major aeronautical and space activities, (4) determine which activities may be carried on concurrently, resolving differences among departments and agencies as to whether a particular project is an aeronautical or space activity.

A review of the hearings indicates emphasis on securing cooperation and coordination of aeronautical and space activities between the military departments and the new agency.[14] For these purposes, the Act provides for a Civilian-Military Liaison Committee headed by a Chairman appointed by the President and composed of an equal number of representatives from both the military department and from NASA.[15] The NASA and the Department of Defense, acting through the Liaison Committee, will advise and consult with each other on all matters within their jurisdictions having to do with aeronautical and space activities, keep each other fully and currently informed on these activities, and strive to reach agreement on differences which might arise in this area between the two agencies. If the Secretary of Defense and the Administrator fail to reach agreement on any difference, then either official may refer the matter to the President for final decision. The Act also provides that the NASA Administrator and the Secretary of Defense may seek solutions to questions of jurisdiction either directly or through the Liaison Committee to hold to a minimum the questions referred to the President and the Space Council.[16]

NASA FUNCTIONS

THE NEW CIVILIAN National Aeronautics and Space Administration is created by Section 202 of the Act and is headed by an Administrator assisted by a Deputy Administrator.[17] It assimilates into its organization the National Advisory Committee for Aeronautics, the agency which, since its establishment by the Congress in 1915 [18] has been the nation's areonautical research establishment.[19] The Act provides that NACA would cease to exist as of the date the Administrator of NASA announced that his organization was organized and ready to exercise its powers, but not later than 90 days after approval of the Act.[20]

The Act provides that it shall be the function

7. Hearings on H. R. 11881 Before the House Select Committee on Astronautics and Space Exploration, 85th Cong., 2d Sess. (1958).
8. Hearings on S. 3609 Before the Senate Special Committee on Space and Astronautics, 85th Cong., 2d Sess. (1958).
9. Cong. Rec. Jun 2, 1958, p. 8893 et seq. and Jun 16, 1958, p. 10233 et seq.
10. *See* Conference Report—Statement of the Managers on the Part of the House. H. R. Rep't. No. 2166, 85th Cong., 2d Sess. (1958), p. 16.
11. The President has appointed Dr. Alan Waterman, Director of the National Science Foundation.
12. Sec. 201 (a). Appointed by the President were Dr. James H. Doolittle, Vice President, Shell Oil Co.; Dr. Detlev Bronk, President, National Academy of Sciences; and Mr. William Burden, former Assistant Secretary of Commerce. All had served as members of NACA. Dr. Doolittle was NACA's last chairman.
13. The Act authorizes the Council to employ a staff headed by a civilian executive secretary to be appointed by the President by and with the advice of the Senate who shall receive $20,000 a year. It was contemplated that a staff so employed would be small. (See H. Rept. 2166, 85th Cong., 2d Sess., 1958, p. 18).
14. *Supra*, notes 7 and 8.
15. *Supra*, Space Act, Sec. 204 (a). This Section provides for the Committee to be composed of one or more representatives from the Department of Defcnse, and one or more representatives from each of the Departments of the Army, Navy, and Air Force, and an equal number from NASA. The Chairman is to be compensated at a rate of $20,000. On November 17, 1958, the President appointed William M. Holaday to be chairman of the Committee. Prior to this appointment, Mr. Holaday was Director of Guided Missiles, Department of Defense.
16. The House Bill (H. R. 12575, 85th Cong., 2d Sess.) also provided for an Atomic Energy Liaison Committee similar to the Civilian-Military Liaison Committee. The Senate amendment did not contain such a provision. The conferees felt that the Administrator would cooperate with the AEC under the general authority contained in the Act.
17. The first Administrator is Dr. T. Keith Glennan, on leave as President of Case Institute of Technology; the first Deputy Administrator is Dr. Hugh L. Dryden, former Director of the National Advisory Committee for Aeronautics.
18. 38 Stat. 930 (1915).
19. On September 30, 1958, NACA personnel totaled 8,000 and the cost of the NACA plant exceeded $300 million.
20. The Administrator announced that on October 1, 1958 NASA was so organized and ready to discharge its powers.

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of NASA to plan, direct, and conduct aeronautical and space activities, to arrange for participation by the scientific community (both in the United States and abroad) in certain of such activities, and to provide wide dissemination of information concerning such activities.[21]

In carrying out the functions assigned under the Act, the Administration is given broad powers.[22] These powers authorize NASA:

—to appoint and fix the compensation of officers and employees needed to carry out its functions,[23]

—to acquire, use, and dispose of property and facilities;[24]

—to accept unconditional gifts of services or property,

—to enter contracts, leases, and agreements, without regard to existing prohibitions against the advance payment of money[25] in the absence of authorization by law. The Act also provides that contracts shall be allocated in a manner to enable small business to participate equitably and proportionately in the work of NASA,[26]

—to use facilities and other resources of Federal and other agencies, and to offer similar cooperation to such agencies;

—to appoint advisory committees;

—to establish procedures for coordinating activities with related activities by other public and private organizations;

—to employ experts and consultants;

—to employ aliens when determined by the Administrator to be necessary;

—to employ retired commissioned officers of the Armed Forces;[27]

—to enter cooperative agreements by which members of the Armed Forces may be detailed for duty in NASA to the same extent as they might be assigned in the Department of Defense;

—to settle and pay claims against the United States for injury or death resulting from activities of the Administration. NASA may settle and pay claims up to $5,000. Meritorious claims in excess of $5,000 must be reported, without any partial payment, to the Congress for its consideration.

—to make security investigations of NASA employees,[28] contractors, and employees of contractors;

—to hold patents and supervise issuance of patents on inventions or discoveries;

—to make monetary awards for scientific or technical contributions; and

—to engage in a program of international cooperation for peaceful applications of the results of the work of NASA, subject to foreign policy guidance of the President and under agreements made by the President with the advice and consent of the Senate. Thus, Section 205 of the Act provided a legislative basis for establishing a long-range and continuing program in the field of international cooperation.

TRANSFER OF FUNCTIONS

AN IMPORTANT PROVISION of the Act is the one relating to the transfer of functions. For a period of four years, the President may transfer to NASA "any functions (including powers, duties, activities, facilities, and parts of functions) of any department or agency of the United States, or of any office or organizational entity thereof, which relate primarily to the functions, powers, and duties of the Administration . . ."[29] In connection with such transfer the President may also transfer records, property, civilian personnel, and funds.[30] However, after December 31, 1958, any proposed transfer must be submitted to the Congress and would become effective after 60 calendar days unless rejected by the Congress by a concurrent resolution.

21. *Supra*, Space Act, Sec. 203 (a). Also, Sec. 303 provides that information obtained or developed by the Administrator in the performance of his functions shall be made available for public inspection except such information protected by Federal statute or information classified to protect the national security.
22. *Supra*, Space Act, Sec. 203 (b).
23. Sec. 203 (b) (2) provides that the Administrator "may appoint and fix the compensation (up to a limit of $19,000 a year, or up to a limit of $21,000 a year for a maximum of 10 positions) of not more than 250 scientific, engineering, and engineering personnel" of NASA. All other personnel shall be appointed in accordance with civil service laws and their compensation fixed in accordance with the Classification Act of 1959, as amended.
24. Disposal of property must be in accordance with the Federal Property and Administrative Services Act of 1949, as amended (40 U. S. C. 471 et seq.).
25. Sec. 3648 of the Revised Statutes (31 U. S. C. 529). However, by including NASA in the Armed Services Procurement Act, see *infra* note 32, advance payments are authorized twice.
26. *Supra*, Space Act, Sec. 203 (b) (5).
27. Subject only to limitations in pay contained in Sec. 212 of the Act of June 30, 1932, as amended (5 U. S. C. 59a).
28. NASA was substituted for NACA in the Act of August 26, 1950 (5 U. S. C. 22-1), the Summary Suspension Act.
29. *Supra*, Space Act, Sec. 302.
30. Under this provision, the President issued Executive Order 10783 October 1, 1958 transferring from the Department of Defense responsibility for non-military space projects such as lunar probes and scientific satellites. The Order also transferred Project Vanguard, the United States Scientific Satellite Program which had been the Navy's responsibility. Executive Order 10793, promulgated on December 3, 1958, transferred from the Department of the Army the Government-owned facilities of the Jet Propulsion Laboratory of the California Institute of Technology.

PROCUREMENT

PROCUREMENT IS OF major interest in this new field of space activity. During the hearings, witnesses [31] testified that the contracting of the new agency would be vastly expanded over that which NACA conducted. Thus, NASA will occupy an important role in government contracting. The procurement powers of the new agency are well established, since the NASA is included in the Armed Services Procurement Act.[32] The application of this Act to the new agency is accomplished by one short provision [33] in the Space Act which adds NASA to the list of agencies whose contracting is subject to the Armed Services Procurement Act. By applying this Act to the NASA, contracting may be accomplished by negotiation as well as by formal advertising under a variety of circumstances. However, the Armed Services Procurement Act establishes certain rules which are now applicable to NASA. This Act (a) prohibits cost-plus-a-percentage-of-cost contracting; (b) limits the use of cost, cost-plus-a-fixed-fee, and incentive contracts; (c) limits the fee which NASA may allow in its cost-plus-a-fixed-fee research, developmental or experimental contracts to not more than 15 percent of the estimated cost of the contract, excluding the fee; and (d) requires that contracts include a warranty against contingent fees.

While the NASA was included in the Armed Services Procurement Act, the Space Act in Section 203 (b) (5) appears to grant the Administration even broader powers. It is not clear whether it was the intent of the Congress to provide two avenues on which NASA could travel on its way to market. The Act states in the Section just cited that the Administration, in the performance of its functions, is authorized "to enter into and perform such contracts, leases, cooperative agreements, or other transactions as may be necessary in the conduct of its work and *on such terms as it may deem appropriate* . . ." (emphasis supplied). This provision standing alone would certainly have been a much broader contracting authority than exists in the Armed Services Procurement Act. However, with NASA being included in the Procurement Act and the above-cited section also providing contracting authorization, certain inconsistencies appear.[34] In this connection, the Administrator of NASA has announced that the Administration would follow the Armed Services Procurement Regulations "in every practicable way." [35]

31. *Supra* note 7, pp. 413 and 938; *supra* note 8, p. 34.
32. 10 U. S. C. 2301–14.
33. *Supra*, Space Act, Sec. 301 (b).

PATENT PROVISIONS

ONE OF THE MOST significant provisions of the Act is that relating to "Property Rights in Inventions." [36] The original Administration bills [37] contained no provisions relating to patents, leaving the questions of securing rights in inventions to the discretion of the agency operating under the general principles of law and regulations adopted by each agency. There appears no discussion in the Congressional hearings of the patent provisions as they were enacted into law. In fact, all of the testimony taken before both Congressional Committees related to bills not having any special patent clauses.[38]

The Administration bill was replaced in the House by a new bill H. R. 12575, which did contain provisions relating to patent rights.[39]

Senate 3609, as amended and reported by the Senate's Special Committee contained patent

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34. For example, Sec. 203 (b) (5) states that advance payments may be made. The Armed Services Procurement Act also permits advance payments but establishes certain requirements, i. e., adequate collateral. In this connection, it appears that good business practice would incline NASA to follow the Procurement Act requirements.
35. NASA Press Release "NASA Announces Contracting Procedures", October 30, 1958.
36. *Supra*, Space Act, Sec. 305.
37. H. R. 11811 and S. 3609, 85th Cong.
38. During the Senate Hearings, Senator Anderson queried Deputy Secretary of Defense Donald A. Quarles on the absence of any patent provisions in the Administration bill. Mr. Quarles replied that it had been assumed in the Department of Defense that the new agency would utilize "the same kind of patent provisions that our own work carries with it." *Supra* note 8, Part 1, p. 78. In a statement furnished for the record Mr. Quarles elaborated on this point. This statement also indicated that the provisions of Executive Order 10096 would govern the employees of the new agency. The statement outlined the broad policy of the Department of Defense of taking only license rights under research and development contracts and indicated that NACA policies and procedures were similar to those of the Defense Department. The statement concludes that since these policies and procedures had provided the Defense Department with an adequate basis for handling patent matters there was no need for special patent provisions in the proposed legislation. *Supra* note 8, Part 1, pp. 97–98. The patent policies of the Department of Defense are contained in Section IX of the Armed Services Procurement Regulations (ASPR).
39. Sec. 507 of H. R. 12575, 85th Cong., vested title in the Government to inventions made under NASA contracts unless the Administrator waived such rights. In the event of waiver, the Administrator was to retain the full right to the use of the invention or discovery and to license others to use it in carrying out the agency's functions under the Act, for which the Administrator was authorized to pay reasonable royalty fees. Where the agency's claim was not waived, the Administrator was authorized to pay the inventor a cash award.

PROGRAMING FOR SPACE DEFENSE

The Advanced Research Projects Agency

By REAR ADMIRAL JOHN E. CLARK

DEPUTY DIRECTOR OF THE ADVANCED RESEARCH PROJECTS AGENCY

WITHIN THE PAST year two new research agencies have been created within our executive government—the National Aeronautics and Space Administration (NASA) and the Advanced Research Projects Agency (ARPA). NASA is organized to pursue those of our national and international space programs which are purely scientific in character. On the other hand, ARPA was established in February 1958 to plan and direct advanced research projects which are vital to the national security.

Clearly, under the National Aeronautics and Space Act of 1958 (72 Stat. 426), NASA was created for the purpose of planning and coordinating the efforts of the nation in matters relating to peaceful aeronautical and space activities. In the very brief period of ARPA's existence there has grown the impression that it *too* is a space agency. This is understandable since the *specific* assignments made to ARPA include the entire field of military space technology, ballistic missiles of defense, and related research in chemistry of propellants. Yet the directive under which ARPA operates does not limit it to these specific assignments, nor did the Secretary of Defense intend that its task be as simply stated. ARPA therefore has been developing in other areas than those specified—a broader area which assumes responsibilities in research other than those related to "Space".

ORDINARILY PROJECTS ASSIGNED to ARPA fall into one or more of three categories: (1) Those which, by virtue of their advanced nature, cannot be identified within the stated military mission of an individual military department; (2) those for which a military mission can be identified as being of interest to more than one of the military departments; and (3) those which, for various reasons, must be pursued by an agency not subordinate to one or more of the military departments.

Prior to the establishment of ARPA, it was found that on occasions the military research and development was hampered by the requirement that funds be allocated to research only when the product could be immediately identified with a weapons system. Since ARPA did not have this limitation, it was found that after its establishment the Defense Department, for the first time, was prepared to emphasize pure research against the judgment that it might lead to a valid military application without proving the judgment in advance. This was a basic step forward. The pace of scientific progress is undoubtedly one of the distinguishing features of this century and basic research cannot afford to be so limited—tied to the existing weapon system. Indeed, as it applies to the military, the President has clearly stated the fact that the days of wholly independent ground, naval, and air forces are gone. There can be no doubt but that many present development projects and many of those to come will have application to more than one of the military departments. This is certainly true of ballistic missile defense, as an example.

Research in such areas must take the fullest advantage of all our U. S. capabilities. It cannot be limited to a portion of our laboratory skill that happens to be employed by a single service or a single company. Since we cannot, and should not, deprive ourselves of the traditional value of military decentralization, we must achieve effective management at a higher level if we are to take advantage of all the skills and resources available.

IT IS THUS apparent that ARPA is a different kind of organization insofar as the Department of Defense is concerned. It has many programs under way which represents the combined efforts of the Department of Defense in its new thinking that is void of intense service viewpoints or inordinate service rivalries.

These programs include use of satellites for communications (Project Score), for early warning, for navigation, and for meteorology. ARPA also has a long-term program for satellite recovery known as Project Discoverer and has a long-term interest in the development of maneuverable space vehicles.

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DISARMAMENT CAN NOT BE DISENGAGED

THE ISSUE OF survival can not be suppressed; nor can the disarmament problem be disengaged. The reasoning is, I respectfully submit, largely irrelevant, and certainly it seems to beg the realistic issue. Neither the physical facts nor the functions of space vehicles can be forced into the fanciful framework wrought by the escapist, would-be architects of "peace through law" in space. For certainly it is an escape solution to assert that missile problems, plus all disarmament problems and security and defense issues, *should* be—and therefore by tacit assumption *can* be—severed from the remainder of the essential agenda of any practicable system of space law.

The Staff Report asserts that there are no "legal reasons" why there could not be developed a "space code aimed initially at the creation of legal principles to cover scientific and commercial matters". Certainly not. But this is irrelevant, because it's not the law, but the facts of space utilization which are such as absolutely to preclude any realistic possibility of "thus bypassing" the "larger policy decisions bound up in security and defense". On any realistic basis, it is just as impracticable to attempt to "disengage" the *burdensome* contributions missilry has made to the problems of space control, as to disengage the *beneficial* contributions military efforts have made to man's success in penetrating space at all.

Consider first the vehicles themselves. Other than the 3-pound Vanguard, there is not one single man-made object now in outer space, or which has thus far ever entered space—U. S. or Russian—which was not put there by rocket thrust developed primarily for military or missilry purposes. The space vehicle which first broadcast a voice message of hope for "peace on earth" was a military missile. All types of space vehicles have potential capabilities of military value, and these capabilities *can not* be physically or functionally severed from a type of space vehicle honestly intended for civilian or purely scientific use.

TURNING FROM THE space vehicles themselves to their uses or functions, the stubborn, unpleasant, inescapable fact is that scientific and commercial uses of space are so inextricably intermixed with security and defense interests that they simply cannot be severed therefrom. Furthermore, there is grave danger that our future essential defense capabilities may suffer from any insufficiently safeguarded attempt even to define the terms "scientific" and "commercial" uses in this critical connection.

Substantially every "scientific" use of space has military implications: many are known to us even now; probably many more exist but are not yet discovered or capable of being understood at this infantile stage of space developments. This should be proved beyond cavil by the SCORE project: the mission of the Atlas missile of December 1958 was "Signal Communications by Orbiting Equipment". It established that men in space vehicles will be able to talk to men on earth.

Scientific accomplishment? Definitely; but equally a military accomplishment in space, and one which foreshadows much more reliable military communications on this earth. Yet this unprecedented achievement is already declared to be "as primitive as baby's first words". So much for the non-severability of the triple potentials of the communication satellite, because commercial possibilities are just as inevitable.[9]

OF EQUALLY VAST military significance will be any scientific-use reconnaissance satellite, under whatever name: but the scientific, commercial and military potentials are—as a matter of fact, not of law—non-disentangleable. So also as to various other types of weather and so-called scientific satellites. For those reasons it is impossible to draft international agreements which would effectively deal with "scientific" and "commercial" uses of space vehicles without automatic involvement in the military potentials thereof, and consequently running head on into the disarmament problems which were sought to be bypassed or disengaged.

The search for world peace through space law therefore should seek other alternatives. What are the possibilities of agreements restricting the use of outer space to "peaceful purposes"?

The United States is, of course, already leading in official declarations in favor of "peaceful uses" of outer space. Congress has endorsed this objective both in resolutions and in substantive law (the National Aeronautics and Space Act of 1958). Even in our United Nations resolution of 12 December 1958, however,

9. Dr. Hugh L. Dryden, Deputy Administrator of the National Aeronautics and Space Administration, viewed the SCORE Atlas as demonstrating "in dramatic fashion some of the potentialities of the commercial satellite. . . . This first step is expected to lead to an economically sound wide band, reliable worldwide communications system." Washington, D. C., Star, Dec. 27, 1958.

we speak in terms of "international *cooperation* and programs". This is quite a different thing from a proposal for international *agreements* purporting to control the use of outer space. Cooperation can do no harm, and may do much good. International Control agreements, on the other hand, can—at the present time—do us little good, and, for several reasons, could do us substantial harm.

"PEACE"—A SEMANTIC TRAP

THE FIRST DISADVANTAGE we suffer in any negotiations with the Communists dealing with the term "peace" or "peaceful" is that we are largely incapable of understanding what they mean by the term. One of our seven fatal fallacies is our assumption that the Communist meaning of "peaceful" is the same as ours. In so assuming, we are laying the basis for suicide by semantics. In any negotiation they are never "sincere"—in our meaning of that word. They are, however, both constant and consistent. The Communists never deviate from their basic dogma that the social and economic structure of capitalistic nations inevitably generates war, and that consequently, "peace" can be achieved only by complete worldwide subjugation of capitalism and creation of a universal federation of "soviet socialist republics". Therefore, any action toward the conquest of capitalism is a peaceful action; similarly from this premise, any action by a capitalistic nation to preserve the status quo, or even to thwart the worldwide march of Communism to the extent necessary for its own survival, is war-mongering.[10]

Our own naive idea of "peace", is a sort of live-and-let-live status in which men are neither killed, tortured, starved, nor imprisoned en masse for political beliefs; in which neither life, nor liberty, nor property is forfeited without due process of law. These things, to us, are essential elements of living at peace. Yet, perversely, we will apparently support or attempt to buy anything—without any of these elements—so long as it is called "peace". We seem completely incapable of understanding, either intellectually or psychologically, that the Communist type of "peace" can be infinitely more terrifying and vicious than any "wars" we have thus far endured.

In "war" the prospective victims at least have a chance to fight back; in Communist "peace" it is always too late for that. The Communist countries and their slave states have enjoyed "peace" for some dozen years continuously now, yet the Hungarian freedom fighters could not really fight back against the massed tanks and mechanized might of the Russian Army. The millions of Russia's own Kulaks could not fight back against mass starvation-to-death imposed as an instrument of Communist party policy. The scores of millions of Chinese peasants liquidated in the vast prelude to the ultimate slavery of peoples' communes had no chance to fight back against the benevolent "agrarian reformer-not real-Communist" masters. An estimated 14 million in the year 1951 alone; and more scores of millions to come, as foreshadowed by the Macao-verified machine gunning in mid-December 1958 of the pitiful resistance in the Sappa Island commune of Wanchai.[11]

RUSSIAN LAND-MASS-POWER

BUT, EVEN ASSUMING contrary to fact, that we are not hopelessly taken in by the Communist general meaning of "peaceful", too narrow a specific definition thereof in relation to international agreements governing the uses of outer space could greatly advantage the Communists and disadvantage us. This is because of the difference in the constituency of their military power and ours here on earth. Their land-power is fantastically greater than ours. Not only does their standing army of some 2,500,000 men dwarf our 870,000-man army, but each year they add twice as many ready reserves as we do—700,000 to our 350,000 (the Armies of the Communist Bloc total 7,-200,000). Communist controlled population is fast approaching *one thousand* million, and the enslaved Chinese alone add 15 million a year. Furthermore, their Communist controlled land-mass totals a vast 13,385,368 square miles against our 3,082,809 square miles. This provides them with incalculable advantages in dispersal of industry, population, and missile sites.

Both our deterrence of general war and our survival therefore depend upon our superiority in nuclear weapons, upon our ready capability for strategic and tactical delivery thereof, and upon mobile naval forces capable of offsetting their land-mass advantage by our control of the sea, capable of discriminating use of nuclear as well as conventional weapons to deter or win limited wars. We are more likely to be nibbled

10. Stated much more effectively in Dr. Henry Kissinger's "Nuclear Testing and the Problem of Peace," 37 Foreign Affairs 1 at 6 (1958). I respectfully recommend it for reading by all who are interested in the survival of the United States.

11. "The Delicate Balance of Terror", Albert Wohlsetter, *Foreign Affairs*, Jan. 1959, p. 211. Although his approach to the problem of national survival is different from that of Dr. Kissinger in "Nuclear Weapons and Foreign Policy", it is equally indispensable.

to death than incinerated in wars in a nuclear holocaust—provided always we maintain a realistic thermonuclear deterrent. But we cannot count on a deterrent if it remains static: the power relied upon must be constantly improved to keep up with the new speed of science.

BELIEVING WHAT WE prefer to believe, we assume that general war is extremely unlikely and that "deterrence" is automatic, continuing and inevitable because we possess thermonuclear weapons and systems to deliver them. The so-called "atomic stalemate" has become a source of great complacency for us. We believe what we read in the papers—and ignore such warnings as:

> "Western journalists have greatly overestimated the difficulties of a Soviet surprise attack with thermonuclear weapons and vastly underestimated the complexity of the western problem of retaliation. . . . Deterrence is a matter of comparative risks. The balance is not automatic. First, since thermonuclear weapons give an enormous advantage to the aggressor, it takes great ingenuity and realism at any given level of nuclear technology to devise a stable equilibrium. And second, this technology itself is changing with fantastic speed. Deterrance will require an urgent continuing effort."

If we confuse deterrence with matching or exceeding the enemy's ability to strike first, we may not provide ourselves with a sufficient capability to strike second. In this case our supposed deterrent could prove to be a fatal illusion.

Just as our survival depends upon our recognizing that the Soviets may start a general war, it is equally essential, however, to realize that they have a tremendous capability to conduct limited war, not only war around the periphery of the huge Communist land mass, but also—through stooges—throughout the entire world. So we also need to maintain and develop our own counter-capabilities for deterring and winning limited wars. And, for both general and limited war purposes, we must continue our development of nuclear weapons.

The primary point is that we do not have now—and have no prospect of generating or supporting—sufficient land-power or conventional forces to deter or resist their similar forces. David would have had little chance with Goliath if David had not perfected his sling—or if he had been talked into throwing it away or not using it. We need to keep our nuclear supremacy to deter attack and to survive—even if we never actually employ it, it will serve its purpose if we maintain our capability and our will to use it.

Of course, David was singularly fortunate in that *his* Goliath was not so astute as to put David's friends and even David's own family to work to convince David that use of slingshots (although obviously his only effective defense against the vastly greater size and conventional strength of Goliath) was in some way much more immoral than any other type of physical force, such as strangling an enemy to death. And of course, a really persuasive Goliath would have had no trouble in convincing David's friends, family, and fence-sitting neighbors, that the way to terminate tensions in the area (caused by a nasty, suspicious interpretation of a friendly remark which was tradition in the Goliath family—that Goliath would bury David) was to pressure David into throwing away his slingshot, and to trust Goliath, whose good faith was demonstrated by his willingness to promise not to use a slingshot himself.

Under such logical pressure, what David who placed a pitifully high value upon the opinions of his neighbors would hold onto his sling of survival merely because Goliath in all his 40 years of young gianthood had never kept any of his promises other than to bury his neighbors; or because at the very time his friends and family were imploring him to show faith by throwing away his slingshot, Goliath was threatening to obliterate David with huge super slingshots of greater range if David did not accept Goliath's ultimatum to surrender that part of his decadent free-labor farm which jutted into an area of land recently seized by Goliath and converted into the wave-of-the-future slave-labor type of project.

In any event, just as the David of old—unmushheaded by psychological warfare, unpressured by intellectual friends and family—took the realistic (and not unmoral) view that without his sling as an equalizer to offset the giant's greater physical strength, he would be doomed to be strangled out of existence, it is certain that we must recognize nuclear weapons both as the only possible equalizer the Communists' vastly greater conventional military power, and as the essential deterrent to Communists' unleashing their own nuclear warheads which, if presently inferior to ours, might enjoy riding intercontinental vehicles of apparently much greater thrust. And with which we are presently threatened by Pravda with total destruction if we commit the "aggression" of failing to surrender Berlin. (See how their semantics work!)

SINCE OUR NATIONAL survival may constantly depend upon maintaining our superiority in nuclear weapons, we should consider well at least one specific example of how we may sacrifice—through premature or unsafeguarded international space agreements—our chance to keep the necessary margin of progress in developing better, cleaner and more precise forms of atomic military power. This requires a look at how free we now are to make use of outer space, unfettered as yet by any international agreements.

One of the substantial services performed by the Staff Report is its establishement of two propositions as to the existing state of the law of space. First, that there is absolutely no consensus, and there are scores of conflicting theories, on the question of where outer space begins (and national sovereignty ends). Second, that there is a very substantial consensus that—regardless of where outer space does begin—it is "free", and not subject to claims of national sovereignty. This conclusion is reenforced by the statement of the Rapporteur of the United Nations First Committee as to the debate on Agenda Item 60, "Question of the Peaceful Use of Outer Space":

> "The debate further showed the complexity of the problem of outer space with regard to its juridical, scientific, technical and political aspects. The idea of the international character of outer space as a *res communis omnium* seemed to have been generally accepted."

Also, Senator Lyndon Johnson in his recent statement before the Political Committee of the General Assembly declared that:

> "Today outer space is free. It is unscarred by conflict. No nation holds a concession there. It must remain this way."

There is one additional and very practical reason for considering outer space as "free". No one has yet devised an effective means for rendering it unfree—that is, of exercising effective dominion over it.

Thus, absent international agreement, outer space is free to be used in all manner exactly as the high seas have traditionally been used. The effect of any international agreement will thereby be to restrict this freedom. It is significant that United States expression generally emphasizes the idea of "peaceful use" whereas the Communist proposal of 15 March 1958 speaks of a "ban on the use of cosmic space for *military* purposes" (italics supplied).

Limiting the use of outer space to "peaceful purposes" certainly does not necessarily exclude harmless scientific testing of weapons. On the other hand, an international agreement banning use for "military" purposes would most likely be construed to ban the testing of weapons even though the tests were completely harmless. Also, the latter type of agreement would furnish a basis for fierce contention that any type of reconnaissance satellite, regardless of whether its primary purpose was scientific, was a "military" use.

Agreements of the latter type, therefore, might very well preclude the United States from developing types of nuclear weapons necessary to deter war and to insure our survival. It is quite clear that the climate of opinion may induce the United States at least to continue indefinitely the ban on the testing of nuclear weapons in any settings of subtantial nuclear fallout. This eliminates surface and atmospheric tests, and leaves only the two alternatives of tests underground or in outer space above the earth's atmosphere. What can be developed by underground tests exclusively probably will be limited. This would leave us with an urgent need to be free to test weapons in outer space, where fallout is harmless. We could not meet this need, regardless of how urgent it might be, if we were bound by an agreement banning military uses of outer space, or even by a "peaceful use" agreement if it were so construed.

Thus we could be seriously disadvantaged by the terms of an international agreement limiting the freedom of space. But we face—or generally refuse to face—an even broader problem with respect to agreements with the Communists, even if specific terms do not in practical effect put us at a disadvantage. Whatever the subject of an agreement—whether nuclear tests, prevention of surprise attacks, or the scheduling and control and inspection of space vehicles, by becoming a party with the Communists, all we accomplish in the long run is to hamstring ourselves.

"AGREEMENTS" WITH COMMUNISTS BIND US ONLY

IT WOULD APPEAR that if we do desire to survive in freedom, we cannot afford unilateral self-limitation on our development of such incalculably valuable military capabilities as are potential in developing the use of outer space. Of course the dream-world optimistic answer to this is that no limitation we would enter would be unilateral. The *theory* is that the scientific and commercial use-limitations would be imposed by international agreement, which would

bind Russia and the Communist Bloc just as it would bind us.

The only way this theory works, however, is to dig the deepest of all traps for us, and to bait it with the one bait we find hypnotically irresistible: the hope of world peace and the end of international conflict. For that theory breaks on the one fatal fact which we as a nation and as individuals seem incapable of recognizing: *no international agreement is capable of binding Communist Russia; nor can any such agreement be enforced against her.* We have forty years of fulsome (in the dictionary meaning thereof) evidence of that fact—but it doesn't fit in with our wishful theory—so we disregard it. The fact would be proved if, out of every thirteen agreements with us, Russia could breach even one with impunity; but the statistics show that out of every thirteen such agreements, Russia violates twelve.

It wouldn't be nearly so threatening to our survival if the only danger of our entering into international agreements controlling the use of space was merely that such agreements cannot bind Russia. The real danger—and it's so real that it may be the death of our trusting, idealistic country some too soon day—is that such international agreements to which Russia and the United States are parties, *do bind us* even though they *don't bind the Communists.* When we enter into an international agreement, we keep it. Against us, it is self-enforcing. Not so for the Communists; look at their record.

The President of the United States has done so. And here is what his study of their record discloses—expressed in his State of the Union message delivered to the Congress on 7 January 1959. Although undoubtedly one of the most significant points of the President's address, and although truly sensational so far as the long run interests of the United States are concerned, little play was given in the press to these words of our President:

> "We cannot build peace through desire alone. Moreover, we have learned the bitter lesson that international agreements, historically considered by us as sacred, are regarded in Communist doctrine and in practice to be mere scraps of paper. The most recent proof of their disdain of international obligations, solemnly undertaken, is their announced intention to abandon their responsibilities respecting Berlin.
>
> "As a consequence, we can have no confidence in any treaty to which Communists are a party except where such a treaty provides within itself for self-enforcing mechanisms. Indeed, the demonstrated disregard of the Communists of their own pledges is one of the greatest obstacles to success in substituting the rule of law for rule by force."

This always awful and possibly fatal danger which may entrap us in international agreements is forcefully explained by Dr. Henry Kissinger in his truly magnificent article, "Nuclear Testing and the Problem of Peace" [12]

> ". . . Evasion will be easier to attempt and to conceal in the Soviet Union than in the West. In the West a ban on nuclear testing will be largely self-policing, because public opinion will not countenance evasion and scientists will not lend themselves to it. No such inhibitions will exist in the USSR."

Although Dr. Kissinger was speaking specifically of agreements limiting nuclear testing, the analogy to agreements limiting the use of outer space is fearfully close. Substantially all the same traps can be set for us in space law negotiations—plus most of those we encounter in the field of negotiations for agreements to prevent surprise attack. This is, of course, inevitable, because the control of the use of space will logically include not only problems as to testing of nuclear weapons, but also the even tougher problem of preventing use of space vehicles in surprise attacks.

THIS BRINGS US to consideration of the second major space trap into which we may fall, that of an international system for scheduling satellites, without the safeguard of an adequate and absolutely effective advance inspection system. Such a system—without such inspection—could easily lull us into a sense of false security from which we would be wakened only by hydrogen holocaust.

The Staff Report makes much of an asserted urgent necessity of being able to distinguish a harmless scientific satellite from an intercontinental ballistic missile, and assumes this can be accomplished by international agreement for scheduling and advance notice. It assumes also that an effective inspection system could be devised. Here again we have the analogy to the problem of inspection for nuclear test bans. As to this, Dr. Kissinger has pointed out that:

> "In any event we must keep in mind that the best inspection system can guard only against presently known methods of evasion. In the nature of things it is difficult to protect against a contingency not yet imagined." [13]

12. *"Nuclear Testing and the Problem of Peace," supra,* note 10, at 3.
13. *Ibid.*

This latter remark is equally applicable to space vehicles. Furthermore, as scientific and other peaceful applications grow and launchings become more common, a nation determined on evasion could overload the inspection mechanism by hiding the hydrogen warheads among many innocent vehicles.

Not only are over-optimistic space-law writers unwilling to face the fact that an effective inspection system may be impossible—some don't even want to mention the subject of inspection at all, for fear of offending the Russians. Thus the Staff Report states:

> "The difficulty would seem to rest with the decision whether or not to press for inspection in order to supplement the filing of flight plans. Quite possibly an agreement could be reached whereby individual nations would give the rest of the world advance notice of their intent to put a vehicle, manned or unmanned, into space; but to back this agreement up with an inspection plan designed to assure that the vehicle launched is, indeed, of the announced character, might simply resurrect the disarmament hobgoblin. At the present time, it might do more harm than good. Nonetheless, the matter must be considered in the formulation or preformulation of any beginning code for space activities."

I suggest that for the United States to enter into such an agreement without a reliable inspection plan would be tantamount to important unilateral disarmament.

Which is but one segment of our dangerous proclivity to seek agreements for the sake of agreement (we lawyers are most guilty of this—because we subconsciously think of agreements as enforceable, and hence capable of ending conflicts); of agreements for the sake of winning votes in a please-love-us international popularity contest; and, most perilous of all, agreements for the sake of "accommodation" to promote peaceful coexistence.

Symptomatic of this compulsion toward concessions is the following, quoted with apparent approval in the Staff Report:

> "The breakthrough to outer space has seemed to most people to require a breakthrough to a less uneasy peace . . . this dreary slide down the slope to possible disaster must somehow be reversed. And outer space opens up a new area for *finding accommodations* which, if properly exploited, could at last reverse the trend." [14] (Italics supplied)

This has at least some logical appeal, in that all the "accommodations" made to the Communists on this earth—Potsdam, Teheran, Yalta, and in the United Nations—have failed to buy their consent to let the world live in peace. Despite the vast scope of these concessions, they were finite. Now we have an opportunity to offer appeasement extending through the infinity of space!

Nothing could be more serious, really, than the consequences of this compulsion to concession. It leads step by inevitable step to surrender. It is, indeed, surrender on the installment plan; the price of peace at any price. Ironically, it—like its twin, the compulsion to agreement—stems from a completely false assumption; and if we can eradicate this assumption, we simultaneously eradicate also the compulsion to national suicide.

THE GREATEST DANGER

THE STAFF REPORT concludes that in crossing the threshold of outer space, the greatest danger of all is "the danger of doing nothing". I submit as my own conclusion that, in this connection the "greatest danger of all" would be to carry over into the foundations of the law of space these two false assumptions:

> (1) The basis for the concession compulsion: that the United States is jointly responsible with Communist Russia for the tensions of the cold war covering the earth—the "national rivalries", the "national struggles for supremacy" [15]—which if "projected onto the larger screen of the cosmos" will result in disaster to the world.

These tensions result solely from the repeatedly declared determination of the Communists to conquer the world, to "strike down capitalism as a whole" (Lenin), to push the Western powers "to their graves" (Khrushchev), and from the protracted warfare conducted by the Communists to achieve their ultimate objective of a worldwide system of soviet socialist republics. We are not (perhaps unfortunately) engaged in a "struggle for supremacy" with the Communists. This is proved by the fact that at the end of World War II we possessed the greatest conventional military power in all history and had a complete monopoly on the atomic bomb. This power, had we desired to seize world supremacy, was more than sufficient for the objective. This we voluntarily renounced and made concession after voluntary concession to show the Russians that we trusted them and had no intention to

14. S. Metzger, *Symposium on Law of Outer Space*, Ohio State University, Apr 12, 1958.

15. M. Cohen, McGill University, as quoted in the *Staff Report*, which quotes in turn the *Reporter*, Jun 12, 1958, p. 19.

dominate the world. We didn't make the issue of world domination by the Communists—and we can't change the issue. The only possible way that we can reduce the tensions is by total surrender. Disengagement and "accommodations" merely breed new Communist pressures and hence additional tensions.

(2) The basis for the agreement compulsion: that peace with the Communists can be attained through law or international agreements.

Communist dogma insists that promises, like piecrust, are made to be broken. In the forty years of its existence, the Soviet Union has entered into over 2,000 agreements, yet no agreement has ever been enforceable against the Soviet.[16] There is now no military power sufficient to enforce an agreement against the Communists. We had such power once but never used it despite their multiple breaches of the most solemn and important international agreements which would have provided a free eastern Europe. Neither will the pressure of world opinion or the United Nations avail to enforce the promises of the Communists. One proof of this: Hungary. The proof that Soviet intentions of breaking promises hasn't changed: the Berlin ultimatum, backed up by threats of unleashed hydrogen warhead intercontinental ballistic missiles.

That agreements with the Communists lead not to peace but to conquest and enslavement is most convincingly demonstrated by the deadly history of their non-aggression pacts. These are, of course, their usual documentary promises of peaceful coexistence, but any other similar type treaty such as of alliance or mutual assistance will do if it serves the purpose of lulling the other party into a feeling of false security and creating that atmosphere of "mutual trust" about which our proponents of "disengagement", of accommodation and of international agreements are so enthusiastic.

HERE IS THE LIST, stretching back to 1920, of countries with which Communist Russia had such agreements:

Georgia:	Independence recognized, consular and diplomatic relations established 7 May 1920. Red Army attacked and took over 11 February 1921.
Ukraine:	Treaty of alliance 28 December 1920; absorbed into Soviet Union 30 December 1922.
Lithuania:	Non-aggression pact 1926; invasion by Red Army August 1940
Estonia:	Non-aggression pact 1932; Red Army invasion August 1940.
Latvia:	Non-aggression pact 1932; Red Army invasion August 1940.
Poland:	Non-aggression pact renewed 5 May 1934 for 10 years; Invasion by Red Army 17 September 1939 jointly with Nazi Army.
Finland:	Non-aggression treaty 21 January 1932; Red Army invasion 30 November 1939

Lawyers who form their opinion on the evidence might well conclude: Whom the Communists would destroy, they first invite to coexist, and offer a non-aggression agreement.

"We are never deceived", said Goethe, "we deceive ourselves." Isn't it about time to free ourselves of our deception that "accommodations" can buy peace from the Communists and that peace with them can be secured through law—even space law?

Stripped of these delusions, space law can indeed be a useful instrument, and bring about order where disorder would be dangerous. If early space law is not distorted in an attempt to accomplish the impossible, it can indeed be effective in promoting the type of international cooperation envisaged by the United Nations' resolution sponsored by the United States and nineteen other nations—and significantly spurned by Russia.

We all can agree with a distinguished authority on space law who concludes that

> "Having achieved such sophisticated means of destroying one another here on earth, we should not be daunted by fear of the *unknown potentialities of space.*" [17]

If, however, we really want to survive in freedom to enjoy the great age of space, we should realistically appraise the *known potentialities* of the Communists.

COMMUNIST POTENTIAL IN massive unequalled landpower on this earth has been considered above—together with the undeviating purpose of global conquest for the accomplishment of which they generate all types of monetary, economic, and political power. Communist space power potential is brought alive for us—too often for our complacency—by news leads such as this truly poetic gem from the 12 January issue of *Time:*

16. Realistic recognition of the non-enforceability of international agreements against Communist Russia is sensationally evident in the President's State of the Union message as quoted on page 25. This demonstrates that the Executive Branch of the Government, at least, is far ahead of the general public—particularly the legal profession—in comprehending the impossibility of accomplishing the miracle of peace through international agreements.

17. Quigg, "*Open Skies and Open Space,*" supra, note 8.

"Streaking through space, out of the gravitational pull of man's world, past the moon, toward an orbit around the sun last week went the most breathtaking new object of the century. It was the first man-made planet—a Russian rocket."

But we did not need the launching of Lunik to underscore the importance of the relative position of the Communist space accomplishment as compared with our own. The Atlas we blasted into orbit weighed 4.3 tons and carried 150 pounds of instruments. Sputnik II, launched more than a year earlier, put a substantially greater weight into orbit and, more significantly, the payload of Sputnik III probably exceeds that of our Atlas by more than ten times. These comparisons, together with the Russian-first Sputnik and the Russian-first Lunik, are symptomatic of Communist space power.

Space power is military power, too. Indeed, the military potentialities of space technology are far greater than general public discussion to date suggests. Emphatic support of this concept appears in the final report of the House of Representatives Select Committee on Astronautics and Space Exploration, entitled "The United States and Outer Space," of 3 January 1959: [18]

"It cannot be overemphasized that the survival of the free world—indeed all the world—is caught up in the stakes. Outer space is vast becoming the heart and soul of advanced military science. It constitutes at once the threat and the defense of man's existence on earth.

. . . A new age is dawning. If we are unprepared, we may be swept away. At best our situation is dangerous. It finds us vulnerable not only to the threat of nuclear, chemical, and biological war, with space employed as a medium of attack, but to the more subtle and equally threatening danger which lies in morale, psychological and political fields." [19]

IT IS EXACTLY because of this incredibly momentous importance of space activities to the survival of the United States that I submit that it would be premature and dangerous to commit ourselves at this time to a code of laws which would control our activities in space. We simply do not and cannot know enough about the facts of space to conjure up a law for it. We haven't yet the basis for even the most inchoate conception of what will be the ultimate and survival interests of the United States in space activities. The Communists have enough advantages over us in their early start in the conquest of space so that we surely cannot afford to add to their advantage by imposing artificial, uninformed legal restrictions upon ourselves.

In other words, what concerns me most about the space age is that we and our children and our children's children shall survive in freedom to enjoy this great new era.

U. S. Foreign Policy for Outer Space

(*Continued from page 7*)

United States may ultimately accede to such views or such limitations, it seems wise for the moment to remain flexible and preserve all rights that our activities may give us, so that we retain a bargaining position which we could use in order to ensure that any international arrangements relating to outer space are in full accordance with our security and other interests.

Lastly, it is worth remembering that the United States has never considered that it is limited in the protection of its security interest to the air space above our territory and territorial waters. For example, we have established coastal air defense identification zones extending 200 and even 500 miles from our shores, although our territorial sea is only 3 miles in breadth. By analogy, we would have the right to establish rules governing the approach of objects from overhead, regardless of whether or not they pass through "outer space". It would seem merely a matter of common sense that until we are fully assured that we know

18. Not to be confused with the "Staff Report" with which this article has been primarily concerned because it is devoted to a survey of space law. The Committee Report herein now referred to was submitted by the Committee itself as distinguished from the Committee's Staff.

19. An imaginative and colorful statement of the politico-psychological potential of accomplishments in the conquest of cosmic space is stated in the *National Review* of 17 January 1959: "The launching of Lunik (or Mechta—'dream'—as it is more officially and more revealingly named) was not primarily a military act. It was a gigantic slice, rather, of that Pie in the Sky of which the Wobblies used to sing. You are still cold and hungry, crowded and shabby, after forty years of the Revolution? Ah, but we are on our way to the moon and the planets and the stars! Who can doubt the Revolution that, before the awe-struck eyes of the world, thrusts mankind forward into Space? If Marxism can orbit the sun, then is not God indeed dead? Then can you—or you others in Asia, Africa, Latin America—doubt that 'the international Party shall be the human race'? The reasoning is flawed, but the emotion is compelling. For once, for perhaps the first time since the Revolution's earliest months, we cannot doubt the enthusiasm that breathes in the dispatches, and shows in the news photographs from Russia. For a moment at least the Dream seems to have brought the Russian people together in a cheering unity around their high-riding leaders. No doubt it was planned that way. * * * * We could use more boldness, more flare, on our journey into space. If the mass audience must have showmanship with its missiles, should the homeland of Barnum, Belasco and Cecil B. DeMille back away from the Competition?"

enough to be able to determine that we are not giving up essential interests of the United States, we should withhold, even by indirection, putting any upper limit on our air space which might prejudice or be interpreted as a renunciation of our rights in this regard.

A POSSIBLE, AND it seems to me sensible, policy with regard to this question might be similar to that which we have followed in the Antarctic. There, for many years, the United States has been engaged in activities which, under established principles of international law, without any question whatsoever, created rights which justify the assertion by the United States of territorial claims to sovereignty over one or more areas of that subcontinent. Notwithstanding this fact, the United States has not asserted any claim of sovereignty, although the United States has, at the same time, made it plain that it did not recognize any such claims made by other states. Nonetheless, the United States has been consistent in asserting that under international law and practice, its activities on the Antarctic continent have entitled it to rights in that area which it has at all times expressly reserved. It is the position of the United States Government that the fact that the United States has not based a claim of sovereignty over one or more areas of Antarctica upon the activities it has engaged in there in no way derogates from the rights that were established by such activities.

While reserving its position as to sovereignty, the United States has recently proposed that nations having interests in the Antarctic agree upon an international administration for that area. Under this plan claims would be frozen for the duration of the agreement, each state reserving its rights. This would provide a sound administrative basis for continued scientific cooperation and for assuring that the activities pursued on the subcontinent were solely for peaceful purposes.

So, too, in outer space, the United States has already engaged in activities which, it could be asserted, have given to it certain rights, as distinguished from those states which have not engaged in such activities. Up to this time, the United States has made no claims based upon such activities. Nor does it seem expedient or necessary at this time for the United States to either assert or expressly or impliedly waive any such claims which it might have. While reserving any such rights, various international arrangments to deal with particular problems or activities might well be made, or the development of customary international law be encouraged, bypassing as it were the question of sovereignty, but providing a firm foundation for cooperative activities of a peaceful, scientific and mutually beneficial nature. A program of this sort would seem to me adequate to protect the future of the United States and yet allow the full achievement of the untold benefits which outer space exploration may offer.

WHAT THEN, is the legal status of satellites or other space objects orbiting through space over various states? The United States was, of course, one of several countries which undertook and collaborated in carrying out during the International Geophysical Year of various announced projects for commencing the exploration of outer space with such vehicles. The information gathered by our satellites was made freely and fully available by this government to all nations. The United States has further announced its support of the Committee on Space Research, organized under the auspices of the International Council of Scientific Unions to carry on a further program in the exploration of outer space upon the termination of the IGY.

The arrangements with respect to the IGY were not made on an international basis, but were between scientific bodies in a private capacity. The arrangements regarding COSPAR are similarly non-governmental. However, nations generally supported these arrangements and no nation protested the transit of satellites launched under these auspices over its territory. There would thus seem basis for implying an agreement on the orbiting of such satellites for the period of IGY. It seems likely that a similar attitude will be adopted in regard to the orbiting of satellites under the COSPAR programs. Up to the present, the community of states appears to have been following the principle that the transit over any state of orbiting space objects or vehicles of any nation, so long as they are not equipped to inflict injury or damage, does not infringe the rights of other states and is reasonable and in the common interest of mankind. It is perhaps not too bold to suggest that we are here viewing the initial stage of development of a principle of customary international law permitting the orbiting of satellites of this nature.

In this connection, I would like to note that in the relatively near future we may have to face up to the question of the legality under international law of so-called "reconnaissance satellites" which would have the capability of surveying the territory over which they pass

and transmitting such information to the launching state. As yet, the United States Government has not taken any position on this question—it has not asserted nor denied any national "right of privacy"—and I do not propose to do so at this time. I would point out, however, that it was the Soviet Union that established an iron curtain against the free flow of information. Not only has the policy of the United States been otherwise, but also you will recall that it was President Eisenhower who in 1955 at that Summit Conference in Geneva made the initial "open skies" proposal. We have continued to press this proposal in various forms and it, too, constitutes a portion of the disarmament proposals approved by the United Nations.

What of the question of sovereignty over celestial bodies, as contrasted with sovereignty over zones of outer space? Under existing rules of international law, may any one nation acquire exclusive sovereignty or "ownership" over parts or all of such bodies so as to have the right to exclude or prevent other nations from exploring, occupying or exploiting them? What will be the legal effect of successful lunar or planetary probes or, perhaps eventually, manned landings?

AS A GENERAL MATTER, it seems clear that international law at the present time furnishes no clear rules or precedents as regards these problems. Neither treaties nor international practice apply to it for the obvious reason that there has been neither necessity nor occasion for either to develop. We have, indeed, analogies to draw upon in the international law pertaining to the law of the sea and in rules and precedents for the acquisition of sovereignty over "terra nullius". But these rules are far from well-defined. They give weight to numerous factors, and they have varied greatly with particular circumstances. Moreover, there are very great risks in attempting to transmute a body of law based upon a determined set of facts on the earth into a body of law with respect to celestial bodies as to which the facts have not been determined and which are in all probability vastly different from anything in our experience. We must be prepared to reject mechanical applications of old and inappropriate rules in favor of new ones more fitted to these unique environments and activities. And we must recognize that the choice of rules in this area will represent a major policy decision for each of the various states—a decision outside the competence of any international body as the world is now constituted.

For the near future, even if successful lunar or planetary probes are carried out, it is my personal view that any attempted solution of this problem is premature. In terms of the practical realities of space exploration, it is becoming increasingly evident that considerable time will elapse and many problems will have to be solved before man, as opposed to his instrumentalities, can voyage to other planets. The recent discovery of a zone of intense radiation on the edge of outer space is but an example of the hard road ahead. We know nothing of the difficulties that may be encountered on celestial territory, the probability or consequences of contact with other forms of life, or the stakes which exclusive control of such bodies may offer. Until human activity on these bodies becomes sufficiently intensive and potentially conflicting as to require legal ordering, decisions on such questions seem to me unnecessary and our energies better spent in other directions. Once again, sensible solutions cannot now be evolved to future problems whose nature and context cannot be accurately foreseen.

Nor do I fear that international law is so inflexible and irrational a mechanism that the limited acts in connection with celestial bodies presently contemplated will freeze the possibility of reasonable legal solution in the future. It is true that such sporadic activities may set the pattern and context out of which solutions will eventually be forged. But we need not fear that they will have any conclusive or binding effect in and of themselves absent the concurrence of the community of nations.

For these reasons, by far the most sensible approach to the question of sovereignty over celestial bodies seems to me to be one of "wait-and-see", similar to that which we are following in the case of the Antarctic. Under such a policy, we would neither assert claims to such bodies ourselves nor recognize claims asserted by other nations, but would reserve any rights to which our activities might entitle us in the future.

The primary need at this time would appear to be for agreement that the activities of man on the other celestial bodies shall be peaceful, rather than decision on how sovereignty over them is to be acquired. If we can reach agreement on this point, the question of territorial claims may well be deferred for the present.

IN CONCLUSION, it is clear that the provision of a system of law to govern human relations in outer space will ultimately be indispensable. This result may come about over a long period of time through the growth of customary practice or the accumulation of agreements dealing with particular subjects. Or the process may ultimately be shortcut by the vesting of authority to develop such principles in international organs. But it may again be emphasized that before final solutions are attempted, we will need to know more about the exact context and nature of the problems themselves and the activities we are seeking to order. And above all, in developing principles of order for this new and vast area of activity and its unique problems we must have a keen awareness of the growing potentialities of outer space and its possible role in the future of man.

From the viewpoint of the United States, proposed solutions must reflect our policy aims to develop systems of institutional adjustment conducive to long-range objectives. These objectives include the demilitarization of space and its devotion to peaceful purposes, the encouragement of scientific research and the rapid achievement of practical benefits from such science to increase human welfare, and the encouragement of international cooperation and institutions of world community. If we pursue these goals conscientiously, we may indeed look forward to a bright and most exciting future.

Space Above the Seas

(Continued from page 9)

free air navigation in such areas that the United States delegation, acting through the late Dr. Edward P. Warner (and myself as Chairman of the Drafting Committee) had no difficulty in urging the adoption of the provision which now appears in Article XII of the Convention dealing with "Rules of the Air" to the effect that "over the high seas, the rules in force shall be those established under the convention." The meaning of this sentence has not been questioned. The drafters of the convention fully understood that each State could unilaterally adopt rules of the air in its territorial airspace. Complementing that right, the States who were parties to the convention have, under Article 12, delegated to the authority set up under the convention (International Civil Aviation Organization) the power to adopt flight rules applicable to their aircraft in the area where no national sovereignty exists, namely over the high seas.

THE COMPARATIVELY SIMPLE rule which is historically apparent, that international law accepts the fact that space over the high seas is not subject to the sovereignty of any single State, would appear to be subject, however, to the principle that every sovereign State may, under certain circumstances, act beyond the limits of its territory to assure itself from injury. In 1950 the United States and Canada established air defense identification zones around parts of their respective shores. Admittedly the air-space over the high seas is not territorial space and enjoys the same international status as the high seas themselves. Yet the United States and Canada did not hesitate to establish regulations to prevent unidentified aircraft approaching their shores from the seas. The United States regulation, for example, requires that foreign aircraft must report their presence and identification when not less than one hour nor more than two hours average cruising distance via the most direct route to the shore. This is a clear application of the right of self-preservation and self-defense applicable outside national territory and within international flightspace. Squadron Leader Murchison, R. C. A. F., in "The Contiguous Air Space Zone in International Law" (published 1956 by Canadian Dept. of National Defence) has argued vigorously that the United States and Canadian regulations do not violate international law nor the Chicago Convention and are entirely valid on the basis of the right of each State to self-protection. The ultimate relationship between the doctrine of freedom of air navigation over the high seas for all States and this unilateral right of self-defense for single States bordering the seas may not yet, however, be finally determined.

One thing is, however, certain, that States such as the United States are entitled to launch satellites and other high altitude instrumentalities from their coasts over the seas, provided, of course, that such flights do not create arbitrary interference with other flight instrumentalities.

A MOST DIFFICULT problem is, however, posed by future possible construction of Article 12 of the Chicago Convention, referred to above, insofar as a high altitude flight is concerned. At the present time the annexes to the Convention provide for the registration and regulation of normal civil aircraft types which require atmospheric aerodynamic lift to maintain flight. If, however, the International Civil Aviation Organization should seek to amend these

annexes in such manner that they apply to civil artificial satellites, or space ships, the question will then arise as to whether the "rules of the air" adopted by the International Civil Aviation Organization apply to high altitude flight in areas of flight space above and beyond the areas used by normal types of aircraft. The article of the convention does not in terms limit its application to "airspace." In other words, has the International Civil Aviation Organization already been given full authority to regulate flight over the high seas at whatever height, or are its powers limited to the areas used by aircraft of the general type in existence when the Chicago Convention became effective? This may create international questions if hereafter a new agency is set up to regulate outer space flight throughout the world. It will be most difficult to have one agency regulating flight over the high seas in areas immediately adjacent to the sea itself, and another regulating such flight at higher altitudes. This problem may be met as soon as the United Nations, or other international body, seeks to draft a new convention, or to amend the Chicago Convention, so as to regulate flight in outerspace.

In summary, space over the high seas is free from national sovereignty claims at any height. But this may not preclude national action in such space when required for self-preservation by an adjacent State. Nor is it clear whether the power of the International Civil Aviation Organization to regulate flight "over the high seas" is limited to normal types of aircraft in the airspace, or may be expanded without amending the Convention to cover flight of any type of civil flight instrumentality in outer space, as well as in the air space.

TERRITORIAL WATERS

THE LEGAL status of flight space over the territorial waters (marginal seas) adjacent to a State is diametrically opposed to that over the high seas. The territorial waters are part of the territory of the sovereign State. In the development of the law of flight, States have made exactly the same claim to the airspace over their territorial waters as to the airspace over their lands. They have never conceded the right of innocent passage for aircraft through airspace over territorial waters that exists for merchant vessels in time of peace through the territorial waters below.

Historically the position is clear. For example, in the British proposal for a convention submitted at Paris in 1919, the first article opened with the statement that "the High Contracting Parties recognize that the full and absolute sovereignty and jurisdiction of every State over the air above its territories and territorial waters etc." The accepted proposal of Admiral Knapp, quoted above, adopted the same principle of sovereignty over the air above its land and above territorial waters, adding that this carried with it "the right of exclusion of foreign aircraft." The Paris Convention as signed included territorial waters in the "territory of a State."

To the same effect is the present Chicago Convention. Article 1 asserts that every State has complete and exclusive sovereignty over the airspace above its territory. Article 2 provides that "for the purposes of the Convention the territory of a State shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such State.

SUCH BEING THE present legal position, two major problems are immediately apparent:

1. The outward sea boundary of national airspace is a perpendicular line extending upward from the outer boundary of the territorial waters, but the width of these is nowhere stated. Does the convention mean "territorial waters" as generally accepted in international law, or does it mean such as may be claimed by the State in question?

2. The upper boundary of the airspace is not fixed, and every question now posed as to the upper boundary of airspace over national lands applies equally to the airspace over territorial waters.

As to the first of these questions, my own view has always been that both the Paris and Chicago Convention dealt with the term "territorial waters" as meaning the area accepted as such by customary international law. Had some other effect been intended, I believe evidence could be found in the Conventions themselves, or in the proceedings at the respective conferences. I have found no such evidence.

National statutes, however, are not uniform. The United States Air Commerce Act of 1926, as amended by the Civil Aeronautics Act of 1938, asserts national sovereignty in the airspace "above those portions of the adjacent marginal high seas, bays, and lakes over which by international law or treaty or convention the United States exercises national jurisdiction." This has recently been repeated in the "Federal Aviation Act of 1958," Section 1108.

On the other hand, the Soviet Air Code promulgated in 1932, and affirmed in 1935, states:

"The airspace of the USSR shall be understood to be the airspace above the land and water territory of the USSR, and above the zone of sea coastal waters as determined *by the laws of the USSR.*" (Emphasis supplied.)

This appears to be a firm declaration claiming sovereignty in the airspace to whatever distance from the shore the national statutes may fix for the territorial waters. The USSR is not a party to the Chicago Convention.

IT MUST THEREFORE be admitted that there is no settled rule applicable world wide as to the basis for determining the boundary between national airspace over territorial waters and free airspace over the high seas. All that can be said is that if the width of the particular territorial sea is fixed and generally accepted, such is the width of national airspace beyond the shoreline.

As to the second question, one answer alone can be given—when international agreement is reached as to the upper boundary of national airspace over the lands of a State, that will also be the boundary applicable over territorial waters.

The limits of this paper will not permit a reexamination in detail of the suggestions that have been made, particularly since the launching of Sputnik I brought forward the pressing legal and diplomatic question as to whether the satellites, or any of them, had flown through national airspace of any State. These suggestions vary widely. Those with some historical and logical support include:

(a) Height up to which "aircraft" (instrumentalities requiring aerodynamic lift) can ascend (approximately 25 miles).

(b) Height at which aerodynamic lift ceases entirely, and Kepler force takes over (approximately 52 miles).

(c) Height at which an artificial satellite may be put in orbit (estimated at 70 to 75 miles).

(d) Height at which no molecules of gaseous air are found (variously estimated at 1,000 to 10,000 miles).

(e) Height without limit, on the theory that "airspace" as used in the Paris and Chicago Conventions, means "usable space."

(f) Height to which the subjacent State may exercise effective control in space above it.

IT IS APPARENT that the two questions just discussed leave the dimensions of the national airspace over the territorial sea in a dangerously vague status. Vital air power problems are involved. The wider the band of airspace from the shore, the greater protection may exist for the adjacent State, but, at the same time, the less will be its freedom of flight inbound from the high seas toward foreign shores. The higher the upper boundary of the airspace, the greater will be the ability of the subjacent State to determine what high altitude flight may be permitted above its territorial waters. At the same time the high altitude flight of its own space ships, or missiles, will be similarly limited above foreign territorial waters. These questions require early and urgent policy consideration. The international law is certainly not now fixed, except to the extent that wide and logical support exists for the traditional three mile width of territorial waters.

If it is hereafter determined that there is a finite upper boundary to the national airspace of the subjacent State, that boundary will apply equally above the territorial waters of such State. If the "outer-space" beyond national airspace is determined to be an area of free flight, not controlled by the State below, the rule will apply equally above the territorial waters as well as the lands of the State. If an international agency should be vested with outer space control, its functions will be applicable in outer space over territorial waters. In other words, any final decision as to the legal status of space above the lands of a State will determine the status of space over territorial waters, including the rights of defense and self-preservation of the subjacent State in outer space.

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13. Yeager and Stark, *Decatur's 'Doctrine'—A Code for Outer Space?* 83 United States Naval Institute Proceedings 931 (1957).

14. Zadorozhnyi, *The Artificial Satellite and International Law,* Sovetskaia Rossiia, October 17, 1957, translated by Anne M. Jonas, The Rand Corporation, T–78, (1957).

The Nations and the Firmament

(*Continued from page 15*)

NEVERTHELESS I TRUST that the Committee will meet and make a report, whether or not the Communists attend. At least the principle has been established that the control of outer space is one for the Assembly of the United Nations to consider—an Assembly where great and small powers alike present their views and proposals on matters affecting the present and future of all mankind. The Soviet Union itself recognized the wisdom of establishing the jurisdiction of the Assembly in its proposals of March 15, 1958, perverted even as these were by their reference to the overseas bases. The majority of the members of the United Nations have shown their anxiety to utilize outer space, under the aegis of the United Nations, for the benefit and not the destruction of mankind.

The Ad Hoc Committee will probably confront two different approaches—first by those who would draft now and quickly conventions settling questions of sovereignty in outer space and deciding, we shall say, that no state can claim in the future sovereignty to the moon, or any part of it, simply because of a first landing on and occupation of part of the moon.

On the other hand the Committee will hear those arguing against the immediate preparation of a detailed and logical convention dealing with the sovereignty and use of outer space. The exponents of this view are likely to be influenced by some of the difficulties confronted on the question of the definition of territorial waters in the recent conference on the Law of the Sea.

I am not unduly disturbed by these two different approaches. I believe that a middle way will be found, that some general principle will be enunciated and that an international agency for the use of outer space for peaceful purposes will eventually be established. The great point is that the subject has come within the purview of the world organization, where it properly belongs, as the repository of the hopes and aspirations of mankind.

UN Resolution

(*Continued from page 2*)

tions, of its specialized agencies and of other international bodies relating to the peaceful uses of outer space;

(b) The area of international cooperation and programs in the peaceful uses of outer space which could appropriately be undertaken under United Nations auspices to the benefit of States irrespective of the state of their economic or scientific development, taking into account the following proposals, among others:

(i) Continuation on a permanent basis of the outer space research now being carried on within the framework of the International Geophysical Year;

(ii) Organization of mutual exchange and dissemination of information on outer space research; and

(iii) Coordination of national research programs for the study of outer space, and the rendering of all possible assistance and help towards their realization;

(c) The future organizational arrangements to facilitate international cooperation in this field within the framework of the United Nations;

(d) The nature of legal problems which may arise in the carrying out of programs to explore outer space;

2. REQUESTS the Secretary-General to render appro-

UN Resolution

(*Continued from page 34*).

priate assistance to the above-named committee and to recommend any other steps that might be taken within the existing United Nations framework to encourage the fullest international cooperation for the peaceful uses of outer space.

NASA

(*Continued from page 19*)

provisions similar to those contained in H. R. 12575; these were eliminated from the bill on the Senate floor in order to permit further consideration of the problem in conference.[40]

In conference, the committee rewrote and expanded the patent provisions. The bill containing these new provisions was passed by the Senate and House of Representatives without further discussion to become the National Aeronautics and Space Act of 1958.

The Space Act provides that inventions which are made in performance of work under NASA contracts shall become the exclusive property of the United States whenever the Administrator determines that (1) the person who made the invention was employed or assigned to perform research and development or exploratory work and the invention is related to such work or was within the scope of his employment duties, whether or not the invention was made during working hours or with a contribution of Government funds or facilities or the services of Government employees during working hours; or (2) the person who made the invention was not so employed or assigned but the invention is nevertheless related to the contract or to the work or duties he was employed or assigned to perform and was made during work-hours or with Government contributions. The Administrator may waive title to any invention or class of inventions made by any person or class of persons in the performance of any work under any NASA contract if the Administrator determines that waiver would serve the interests of the United States and upon such terms and conditions which will protect the United States' interests. While the Administrator may waive title, the Government must retain, under the provisions of the Act an irrevocable, nonfor the practice of such invention throughout exclusive, nontransferrable, royalty free license the world by or on behalf of the United States or any foreign government pursuant to any treaty or agreement with the United States.

THE ACT ALSO provides that "No patent may be issued to any applicant other than the Administrator for any invention which appears to the Commissioner of Patents to have significant utility in the conduct of aeronautical and space activities . . ." [41] Procedurally, no patent shall be issued for such an invention unless the applicant furnishes the Commissioner within 30 days of his application a sworn statement setting forth the full facts concerning the circumstances under which such invention was made and stating the relationship (if any) of such invention to the performance of any work under any NASA contract. This statement is furnished to the Administrator who may, within 90 days, request that the patent be issued to him on behalf of the United States.

This provision has led some to hold that the Act permits the Administrator to take ownership to *any* invention which has significant utility in the conduct of aeronautical and space activities.[42] It appears to this writer that this subsection should be read in conjunction with the preceding subsections 305 (a) and (b). Thus read, the Administrator could take title only when there was a contractual relationship with the NASA. The Conference report appears to support this interpretation since it discusses subsections 305 (c) and (d) as providing a means for determining "any controversy with respect to the validity of the Administrator's claim of title to any invention." [43] If the Administrator requested title to be vested in the United States regardless of any contractual relationship to NASA, it is not clear from Section 305 whether the Commissioner of Patents could do so.

The Act also provides for notice to the applicant and a hearing before the Board of Patent Interferences and determination by the Board, subject to appeal to the Court of Customs and Patent Appeals. The Administrator may during a five-year period challenge any applicant's statement as containing a false representation of material fact and request transfer of title to the patent to him. Such transfer will take place unless within 30 days after receipt of notice by the patent owner he requests a hearing before the Board of Patent Interferences.

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40. Cong. Rec. (Daily) June 16, 1958, p. 10233.
41. *Supra*, Space Act, Sec. 305 (c).
42. Wilson R. Maltby in his article on the patent provisions of the National Aeronautics and Space Act of 1958 states: "In the new Act the control by the Administrator is not limited to situations of financial support or use of Administration equipment and facilities, and the restrictive provisions become applicable merely upon a finding of significant utility in aeronautical and space activities." *The National Aeronautics and Space Act of 1958 Patent Provisions*, 27 Geo. Wash. L. Rev. No. 45 (1958).
43. *Supra*, note 10, p. 23.

The Act authorizes the Administrator to license others under patents held by him on behalf of the United States and to protect inventions or discoveries owned by him, and to require contractors or persons retaining title under the Act to protect such inventions to which the Administration has or may acquire a license.

INVENTIONS AND CONTRIBUTIONS BOARD

THE ACT PROVIDES for the establishment of an Inventions and Contributions Board within the Administration [44] whose functions are (1) to evaluate and recommend to the Administrator for a monetary award, if any, any scientific or technical contribution which may have "significant value in the conduct of aeronautical and space activities," [45] without regard to the patentability of the contribution or its conception in the performance of work under any NASA contract, and (2) to recommend to the Administrator action to be taken on proposals to waive title to inventions.

The Board is a very important factor in the granting of waivers of title to inventions, as discussed above. This is so because the Act provides that each proposal for *any* waiver "shall be referred to the Board." The Board must accord each interested party an opportunity for a hearing and must transmit to the Administrator its findings of fact with respect to such proposal and its recommendations for action taken.[46]

Regarding the other function of the Board, each application made for a monetary award for a scientific or technical contribution must be referred to the Board. The Board must provide an opportunity for a hearing upon such application and must transmit to the Administrator its recommendation as to the terms of the award, if any, to be made to the applicant. The Administrator would make his determination on the basis of the record so made in the light of prescribed standards.[47]

The Administrator is authorized to apportion the award made for any contribution among two or more contributors in proportions determined by him to be equitable. An award made for any contribution must be conditioned upon the waiver by the recipient of any claim which he might have to receive compensation for the use of such contribution. The legislative history of the Act indicates that one of the objectives of the awards provision was to provide a basis for payment to an inventor when title to his invention was not waived by NASA. No award exceeding $100,000 may be made until after a complete report regarding the proposed award has been made to the Congress and 30 days have expired after receipt of such a report by the Congress.

CONCLUSION

THE ESTABLISHMENT OF a national program is necessary for reasons of national defense and to insure that in the long run outer space is effectively utilized for peaceful purposes. The National Aeronautics and Space Act of 1958 provides the charter to carry out such a program.

44. On December 4, 1958, the Administrator established the Board with the following members: Robert E. Littell, Assistant to Director of Aeronautics and Space Research, Chairman; Paul G. Dembling, Assistant General Counsel; Allen Crocker, Chief, Guidance and Control Programs; Elliot Mitchell, Chief, Rocket Booster Development Programs; and Guy C. Ferguson, Office of Director of Personnel. Dr. James A. Hootman is the fulltime Secretary of the Board.

45. *Supra*, Space Act, Sec. 306 (a). Such contributions could originate with (a) the general public, (b) NASA contractors or their employees, (c) NASA employees, and (d) employees of other Government agencies.

46. *Supra*, Space Act, Sec. 305 (f).

47. In determining the terms and conditions of any award, the Act provides that the Administrator shall take into account: "(1) the value of the contribution to the United States; (2) the aggregate amount of any sums which have been expended by the applicant for the development of such contribution; (3) the amount of any compensation (other than salary received for services rendered as an officer or employee of the Government) previously received by the applicant for or on account of the use of such contribution by the United States; and (4) such other factors as the Administrator shall determine to be material." *Supra*, Space Act, Sec. 306 (a).

Programing for Space Defense

(*Continued from page 20*)

These activities, together with work in high energy upper stage development and the production of a rocket cluster of 1½ million pounds of thrust, combine to give the United States a competent capability to operate in space for defense purposes.

Other projects for development of solid propellants of higher specific impulse and for planning and sponsoring of forward-looking ballistic missile defense systems, round out ARPA's activities.

Through ARPA, the best of the Army, Navy, Air Force, and Marine Corps thinking and research is applied in order to obtain a *total* defense effort in the space age that has arrived.

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